PB-230 576

POLLUTION OF THE INTERSTATE WATERS OF OHIO RIVER AND ITS TRIBUTARIES IN THE PITTSBURGH PENNSYLVANIA AREA INVOLVING PENNSYLVANIA, OHIO AND WEST VIRGINIA. PROCEEDINGS OF CONFERENCE HELD AT PITTSBURGH, PENNSYLVANIA ON SEPTEMBER 30-OCTOBER1, 1971. VOLUME 1.

Environmental Protection Agency
Washington, D.C.

30 September 1971

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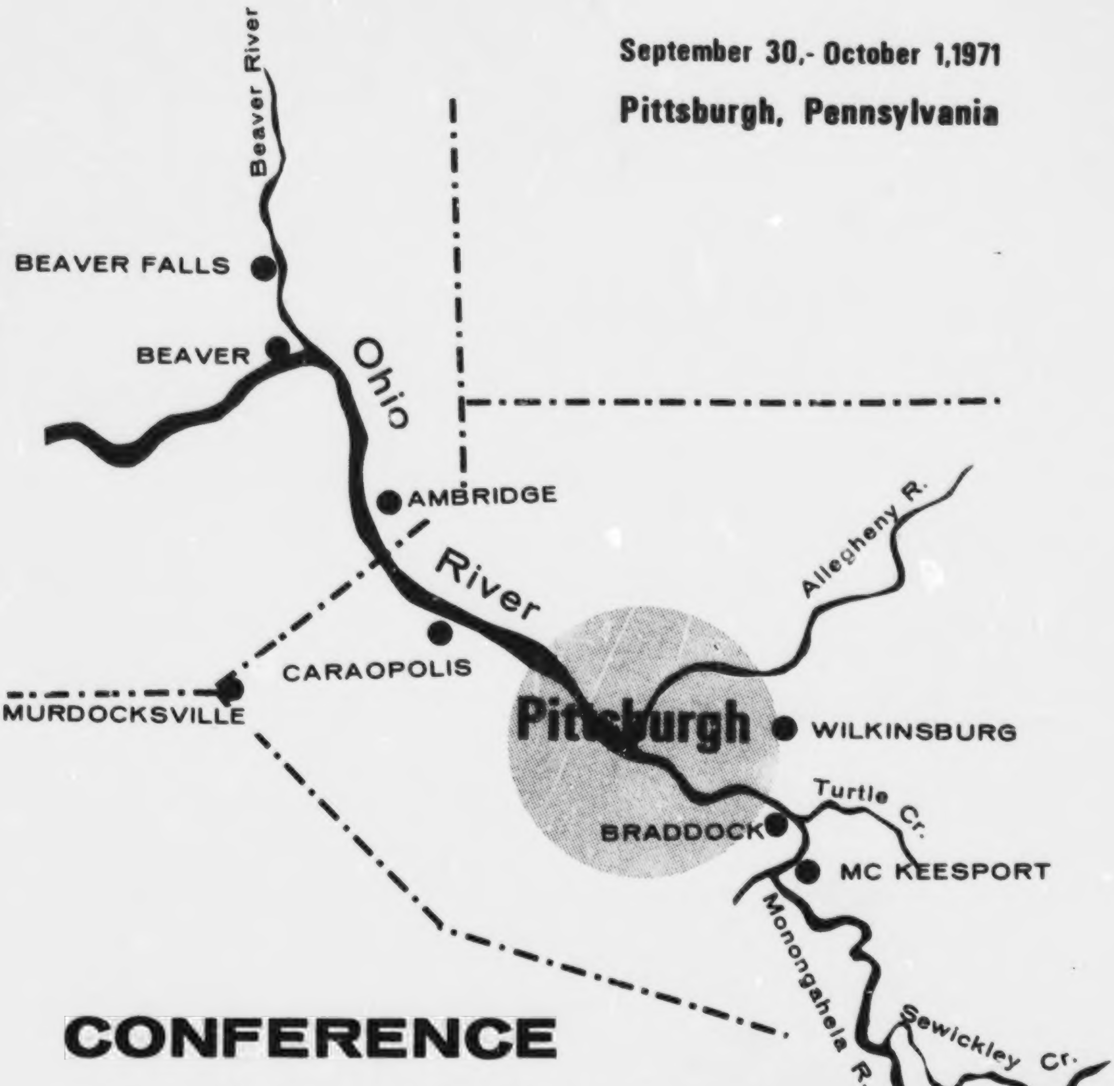
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CONFERENCE

In the Matter of Pollution of the Interstate Waters of the Ohio River and its Tributaries in the Pittsburgh, Pennsylvania Area— Pennsylvania, Ohio and West Virginia

ENVIRONMENTAL PROTECTION AGENCY

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CONFERENCE IN THE MATTER OF POLLUTION OF THE INTERSTATE WATERS OF THE OHIO RIVER AND ITS TRIBUTARIES IN THE PITTSBURGH, PENNSYLVANIA AREA INVOLVING PENNSYLVANIA, OHIO AND WEST VIRGINIA

VOLUME I

King's Garden Room
Pittsburgh-Hilton Hotel
Pittsburgh, Pennsylvania
September 30, 1971

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Conference in the Matter of Pollution of the Interstate Waters of the Ohio River and Its Tributaries in the Pittsburgh, Pennsylvania Area Involving Pennsylvania, Ohio and West Virginia, held in the King's Garden Room of the Pittsburgh-Hilton Hotel, Pittsburgh, Pennsylvania, on Thursday, September 30, 1971, at 9:30 a.m.

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INTERSTATE POLLUTION OF OHIO RIVER
PITTSBURGH, PENNSYLVANIA AREA

U.S. ENVIRONMENTAL PROTECTION
AGENCY
REGION III

Interstate Pollution of Ohio River

Pittsburgh, Pennsylvania Area

ERRATA SHEET

Page 8, item 5b, delete "cyanide" and "Nickel" from the list of contaminants.

Page 8, add item 5c and 5d, to read as follows:

c. Shall not contain amounts of ammonia that will cause the concentration of ammonia in the receiving stream to exceed 0.5 mg/l of ammonia as Nitrogen.(N)

d. Shall not contain amounts of cyanides that will cause the concentration of cyanides in the receiving stream to exceed 0.025 mg/l.

Page 11, second line from bottom, omit first two words of line, "and population"

Page 63, line 6, for "Ohio", read "Pennsylvania"

A REPORT ON POLLUTION
OF THE OHIO RIVER AND ITS TRIBUTARIES
IN THE PITTSBURGH, PENNSYLVANIA AREA

U. S. ENVIRONMENTAL PROTECTION AGENCY

REGION III

1971

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INTRODUCTION

On the basis of reports, surveys or studies, the Administrator of the U. S. Environmental Protection Agency, having reason to believe that pollution from sources in Pennsylvania was endangering the health or welfare of persons in Ohio and West Virginia, called a conference of the Commonwealth of Pennsylvania, the States of Ohio and West Virginia, the Ohio River Valley Water Sanitation Commission (ORSANCO) and the U. S. Environmental Protection Agency (EPA) on the interstate pollution of the Ohio River in the Pittsburgh, Pennsylvania area. The conference was called in accordance with Section 10(d) of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1160).

The purpose of this report is to delineate the characteristics of this pollution of the Ohio River, the municipal and industrial sources of this pollution in Pennsylvania, the effects of this pollution upon water quality and water uses; the adequacy of present wastewater treatment facilities; and future abatement requirements.

This report on pollution of the interstate waters of the Ohio River is based upon: previous reports; data and other materials obtained from the Pennsylvania Department of Environmental Resources, ORSANCO, and the U. S. Geological Survey (USGS); information furnished by other Federal, State, and local agencies and individuals; official records of the Department of the Interior; and data obtained by EPA during field studies in May and June 1970, and February and March 1971.

SUMMARY

The Ohio River is formed by the confluence of the Allegheny and Monongahela Rivers at Pittsburgh, Pennsylvania, and flows generally in a northwesterly direction to form the border between West Virginia and Ohio at river mile 40. This report considers the main-stem of the Monongahela River from Allenport, Pennsylvania, at river mile 47, to Pittsburgh, at river mile 0, and the main stem of the Ohio River from Pittsburgh to Chester, West Virginia, at river mile 42. The area is highly industrialized and is noted for its heavy concentration of iron, steel, and metal processing plants.

The Ohio River from Pittsburgh to river mile 42 is used principally for navigation and as an industrial water supply. The Ohio River in Pennsylvania is not used as a major municipal water source because it contains high bacteria densities, high concentrations of phenolic compounds and other materials that cause taste and odor problems. The water is generally unpalatable without extensive water treatment. Fishing and recreational use of the river have been restricted by pollution. The States of Pennsylvania, Ohio and West Virginia have adopted specific criteria for the Ohio River in order to protect legitimate uses as defined in their Water Quality Standards. These criteria were approved by the Administrator of the U. S. Environmental Protection Agency.

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Unusually large loads of municipal and industrial wastes are discharged to the Ohio and Monongahela Rivers in Pennsylvania, affecting the area covered by the conference. The largest source of municipal waste is the Allegheny County Sanitation Authority treatment plant at Ohio River mile 3.1. Industrial waste sources vary considerably but the main sources are large iron, steel, and metal processing plants, such as the plants operated by Jones and Laughlin Corporation at Aliquippa, Crucible Steel Corporation at Midland, Shenango, Inc. on Neville Island, several U. S. Steel plants and the Wheeling-Pittsburgh Steel plant at Monesson. These municipal and industrial wastes affect the water quality of the Ohio and Monongahela Rivers by causing excessive bacteria densities; by depleting the dissolved oxygen content of the Ohio River; by forming oily sludges that are toxic to benthic microfauna; and by contributing excessive loads of phenols, iron, oil, heat, settleable solids, and suspended solids.

Aquatic life in these reaches of the Ohio and Monongahela Rivers is largely limited to pollution-tolerant fish and aquatic organisms. The fish population is mainly comprised of those species that are not considered sport fishes, and pollution renders these fish inedible because of fish flavor. Benthic fauna consists of only pollution-tolerant sludgeworms, and these are found in low numbers indicating toxicity.

CONCLUSIONS

1. The Ohio River is polluted by industrial and municipal wastes, originating in Pennsylvania, and endangering the health and welfare of persons in Pennsylvania, West Virginia and Ohio.

2. The Ohio River from Pittsburgh to Chester, West Virginia is polluted by untreated and inadequately treated domestic wastes that create bacterial pollution in the river; the coliform densities exceed the Federal-State Water Quality Standards criteria almost continually. The river can be used for a public water supply only with extensive treatment. Use of the river for recreation is hazardous to human health.

3. The Ohio River from Pittsburgh to Chester, West Virginia is polluted by untreated and inadequately treated organic wastes from municipal and industrial sources that form toxic sludge deposits upon the river bottom and often deplete the dissolved oxygen content of the river below levels necessary to support fish and other aquatic organisms. The dissolved oxygen content of the river is often below the minimum concentration set in Pennsylvania's Water Quality Standards.

4. The Ohio River from Pittsburgh to Chester, West Virginia often contains high concentrations of phenolics, originating from industrial discharges to the Ohio, Monongahela, and Allegheny Rivers in Pennsylvania that cause fish flavor tainting and produce taste and odor problems in municipal water supplies in Pennsylvania, West Virginia and Ohio.

5. The Ohio River from Pittsburgh to Chester, West Virginia is polluted by oil, originating from industrial sources in Pennsylvania, that interferes with uses for recreation, fishing, and municipal water supplies. Oily sludges, toxic to bottom animals, cover much of the river bottom, and oils mark much of the shoreline.

6. The Ohio River from Pittsburgh to Chester, West Virginia is polluted by waste toxic to fish and aquatic organisms. Populations of fish and other aquatic organisms are restricted to pollution tolerant species, and the fish which are present are inedible.

7. The temperature of the Ohio River from Pittsburgh to Chester, West Virginia during critical periods borders upon the maximum temperature permissable to sustain an adequate warm water fish population.

8. Municipal and industrial discharges to tributaries of the Ohio River in Pennsylvania, especially the Monongahela River, contribute substantially to the water quality problems in the Ohio River.

RECOMMENDATIONS

It is recommended that:

1. All boroughs, townships and sanitation authorities in the Commonwealth of Pennsylvania that discharge municipal wastes to the Ohio River and its tributaries, except the Allegheny County Sanitary Authority, provide a minimum of secondary treatment for all their waste waters. Such secondary treatment should provide a minimum of an 85 percent reduction of both suspended solids and oxygen demanding material throughout the year; the oxygen demanding material measured by the 5-day biochemical oxygen demand (BOD_5) test.

2. The Allegheny County Sanitary Authority's treatment plant at Pittsburgh provide, as a minimum, a 90 percent reduction of both suspended solids and oxygen demanding material throughout the year. The rate of discharge by this plant shall not exceed a BOD_5 load of 20,000 pounds per day and a suspended solid load of 40,000 pounds per day.

3. All industrial discharges to the Ohio River and its tributaries in Pennsylvania be treated to reduce the organic waste load by 85 percent as measured by the 5-day biochemical oxygen demand (BOD_5) test.

4. All municipal waste treatment plants in Pennsylvania that discharge to the Ohio River and its tributaries should provide adequate year-round disinfection of their waste water effluents.

Adequate disinfection is that which provides an effluent which will contain a concentration not greater than 200 per 100 ml of fecal coliform organisms as a geometric average value nor greater than 400 per 100 ml of these organisms in more than 10 percent of the samples tested.

5. Waste waters discharged into the Ohio River and its tributaries in Pennsylvania from municipal and industrial sources:

   a. Shall not show irridescence nor contain more than 10 mg/l of total oil

   b. Shall not contain amounts of the following substances that will cause the concentration in the receiving stream to exceed the acceptable level as specified in the most recent edition of the USPHS Drinking Water Standards:

      Arsenic
      Barium
      Cadmium
      Chromium, hexavalent
      Copper
      Cyanide
      Lead
      Nickel
      Phenols
      Selenium
      Silver
      Zinc

6. Waste waters from industrial and municipal sources that discharge to the Ohio River or its tributaries in Pennsylvania not contain more than 7.0 mg/l of total iron nor 1.0 mg/l of manganese.

7. Waste waters from industrial and municipal sources that discharge to the Ohio River and its tributaries in Pennsylvania shall not contain material toxic or harmful to aquatic life. Waste waters are considered toxic if over half of the test organisms are fatalities in a 96-hour bioassay.

8. Waste waters from industrial sources that discharge to the Ohio River and its tributaries contain no settleable solids nor a concentration of suspended solids in excess of 30 mg/l.

9. All new and proposed expansions of existing thermal electric power plants along the Ohio River and its tributaries in Pennsylvania should include facilities for off-stream cooling throughout the year.

10. All municipal and industrial waste sources in the conference area have the required treatment facilities completed and in operation by December, 1973 except where completion is required earlier by the Federally approved water quality standards. Interim dates for all waste sources in the conference area are to be submitted to the conference chairman within three months.

11. Concentrations of all materials shall be determined according to the procedures outlined in the latest edition of Standard Methods.

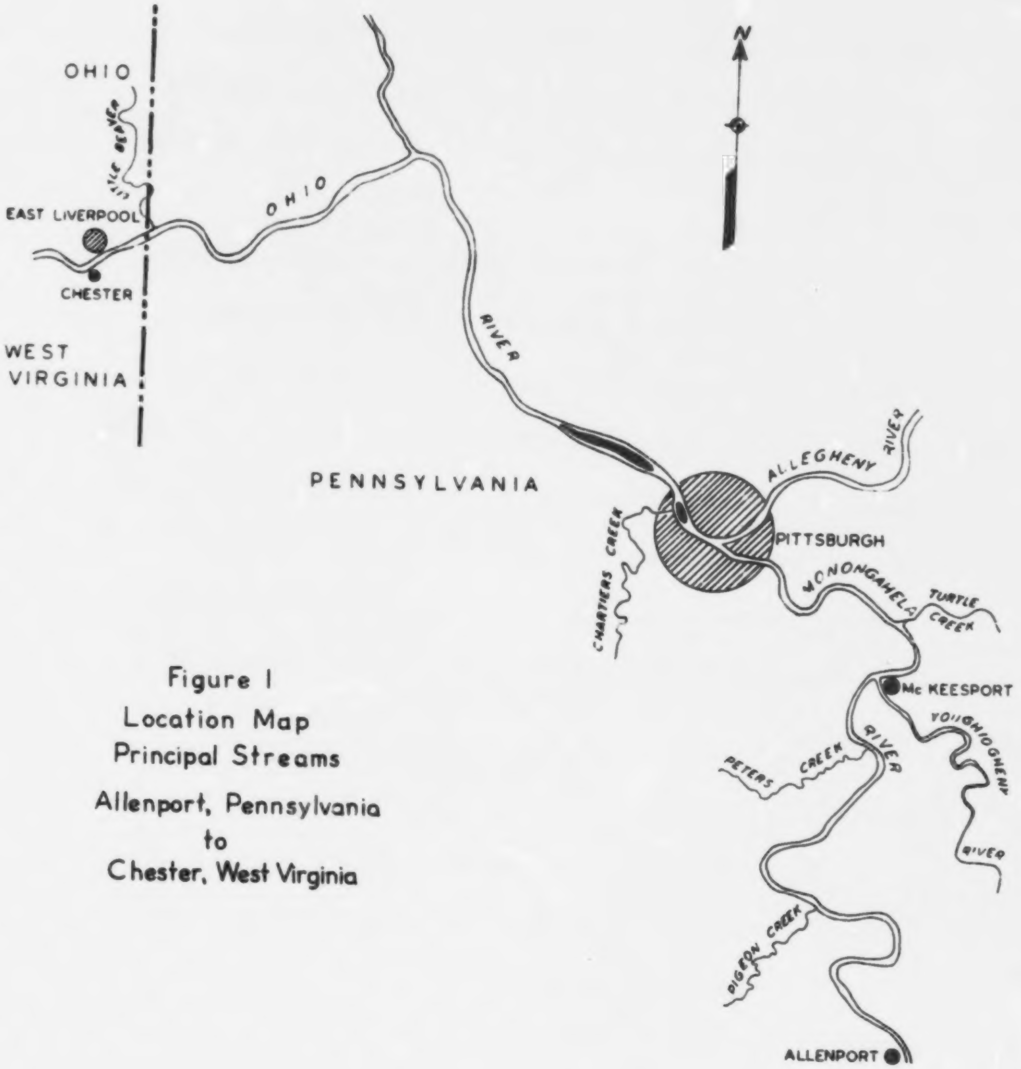
N
OHIO
LITTLE BEAVER
EAST LIVERPOOL
CHESTER
WEST VIRGINIA
OHIO
RIVER
PENNSYLVANIA
ALLEGHENY RIVER
PITTSBURGH
CHARTIERS CREEK
MONONGAHELA
TURTLE CREEK
Mc KEESPORT
YOUGHIOGHENY
RIVER
PETERS CREEK
RIVER
PIGEON CREEK
ALLENPORT

Figure 1
Location Map
Principal Streams
Allenport, Pennsylvania
to
Chester, West Virginia

AREA

The Monongahela River flows from northern West Virginia into Pennsylvania near Point Marion, Pennsylvania and continues on a northerly course for 91 miles to Pittsburgh, Pennsylvania (Figure 1). At Pittsburgh, the Monongahela River joins the Allegheny River to form the Ohio River. The Ohio River then flows in a northwesterly direction for 25 miles to its confluence with the Beaver River, south of Beaver Falls, Pennsylvania. From its confluence with the Beaver, the Ohio River flows in a westerly direction for 15 miles to the Pennsylvania-Ohio-West Virginia State boundary approximately three miles east of East Liverpool, Ohio. At this point, the river leaves Pennsylvania and forms the border between the States of Ohio and West Virginia.

The area considered in this report is the main stem of the Monongahela River from Allenport, Pennsylvania, at river mile 47, to its confluence with the Allegheny River at Pittsburgh and the main stem of the Ohio River from Pittsburgh to Chester, West Virginia, at river mile 42. The total population of townships and boroughs adjacent to or near to the Monongahela and Ohio Rivers in this area was approximately 1,100,000 in 1970, including 520,000 in the City of Pittsburgh.[1] A total population of 1,300,000 is served by the Allegheny County Sanitary Authority (ALCOSAN) which discharges to the Ohio River.[2] This disparity between population and population and population served results from the many communities that are served by the ALCOSAN system but are located in neither the Ohio River nor Monongahela River basins.

The Monongahela River at Charleroi, Pennsylvania drains an area of 5,213 square miles, the drainage area increases to 7,381 square miles at Pittsburgh. The largest tributary to the river in this area is the Youghiogheny River that drains an area of 1,768 square miles and flows into the Monongahela River at McKeesport, Pennsylvania. Other major tributaries of the Monongahela River in this area are Turtle, Pigeon and Peters Creeks that drain 147, 59 and 52 square miles, respectively.

The Monongahela River has been canalized in this area with three dams and navigation locks. These structures provide a 9 foot channel for navigation. Locks at Dams 2, 3, and 4 provide vertical lifts of 8.7, 8.2 and 16.6 feet respectively at normal pool for the Monongahela River.

The Ohio River at Pittsburgh drains an area of 19,111 square miles; the drainage area increases to 23,300 square miles at the Pennsylvania State line. In Pennsylvania, the Ohio River has been canalized with three dams and navigation locks -- Emsworth, Dashields and Montgomery. A fourth lock and dam, New Cumberland, is located 14.4 miles downstream from the State line. A 9 foot channel is maintained here also. The vertical lift at the Emsworth, Dashields and Montgomery dams at normal pool are 17.5, 10.0 and 18.0 feet, respectively.

The area is heavily industrialized by basic steel, metal processing and chemical plants that occupy the alluvial plain. The availability of water transportation has made the area an important terminal for barge traffic, especially for coal and petroleum products. The heavy concentration of steel producing facilities in the immediate Pittsburgh area has earned Pittsburgh the title of "Steel Capital of the World."

WATER USES

PRESENT USES

The Monongahela River from Allenport to Pittsburgh is utilized principally for navigation and as an industrial and municipal water supply. The Ohio River in Pennsylvania is also used for navigation and as an industrial water supply, but usage as a municipal water supply is limited. Both rivers are used sparingly for recreation and for fishing, since these uses are severely restricted by pollution. There is presently no use of the Ohio and Monongahela Rivers in this area for hydroelectric power and usage for irrigation has been negligible.

Municipal Water Supply

The Monongahela River is used widely as a source of municipal water. About 623,000 people in this area are served by municipal water systems that use the Monongahela River as a raw water source. The South Pittsburgh Water Company alone serves about 480,000 people. Other major municipal users are the Charleroi, Elizabeth and North Versailles systems that serve 60,000; 37,600; and 16,000 people, respectively.

The Ohio River in Pennsylvania is not used extensively as a raw source for municipal water. In Pennsylvania, only the City of Midland uses the river as a raw water supply for approximately 7,000 people. Midland's raw water intake is located approximately four miles upstream from the Pennsylvania State line.

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East Liverpool, Ohio is the only other municipality in this area to use the river as a raw water source; this system serves about 30,000 people.[3] The extensive treatment used by the East Liverpool plant is indicative of the problems encountered when using the Ohio River as a raw water source. Chlorine dioxide is used for disinfection because of its characteristic of effectively destroying phenolic substances that cause taste and odor problems in finished water. The use of chlorine for disinfection of waters containing phenolic substances results in objectionable taste and odor in the finished water. High concentrations of phenols and other taste and odor causing materials necessitate the use of carbon filters to remove the foulness from the water. In the winter months, even this extensive treatment proves ineffective when phenol concentrations are high in the river.[4] All other municipal systems in this area rely upon ground water from infiltration galleries, Ranney wells, or drilled wells for raw water sources.

Fishing

In the eighteenth and nineteenth centuries, explorers, frontiersmen, settlers, and naturalists were impressed with the abundance and size of the fishes that they took from the Ohio River as they descended the river from Pittsburgh. Today, the river is used for fishing although the use is limited by the type of fish population (predominantly rough species such as carp, bullheads and gizzard shad) and the edibility of the fish (caused by fish tainting). Fishermen are also reluctant to fish in the river because of the oil, scum, and debris that persists near major municipalities and industries. The Pennsylvania Fish Commission does not stock either the Ohio or Monongahela Rivers, although many tributary streams in the area are stocked.

Recreation

Boating is the main recreational use of the Ohio and Monongahela Rivers in Pennsylvania, although the use falls short of what would be expected if the rivers were clean. The Corps of Engineers reports that the nine marinas, ramps, and/or docks along the 40 miles of Ohio River in Pennsylvania have a mooring capacity of 185 berths. Similar figures for the 47 miles of the Monongahela River reveal that 14 marinas, ramps and/or docks have a mooring capacity of 226 berths. For comparison, the Allegheny River from Pittsburgh upstream to mile point 40 have a mooring capacity of 1657 berths at 33 facilities.[5]

The oil, scum, and floating debris that persists in most sections of the Ohio and Monongahela Rivers limit their use for contact recreation. More important, although not visible, are the dangerously high bacterial counts, indicative of the presence of pathogenic organisms. Bacteria densities often exceed the level which is considered hazardous for secondary, non-contact recreation such as boating and fishing.

Industrial Water Supply

The Ohio and Monongahela Rivers are used extensively by industries in this area as a source of process and cooling water. Total water use exceeds 6.2 billion gallons per day, of which approximately three-fourths is used as once-through cooling water for thermal electric power generation. Major iron and steel producers account for approximately 20 percent of the industrial water use, the bulk of which is also used for cooling purposes. It has been estimated that cooling water comprises approximately 80 percent of the total water use in basic steel production, but reuse may alter the percentage considerably.[6] The balance of the industrial water (approximately 5 percent) is used by metal processing plants, chemical plants, petroleum processing plants, and various other operations.

Navigation

Navigation is one of the most important uses of the Ohio and Monongahela Rivers in Pennsylvania. Along with the accompanying industrial uses, navigation is an integral part of the economic development along these two rivers. The Corps of Engineers has issued permits for a total of 171 river terminals from Allenport to Pittsburgh on the Monongahela River and from Pittsburgh to mile point 42 on the Ohio River.

The following table lists the number of terminals capable of handling specific materials:

Material	Number of Terminals
Oil and gasoline	29
Stone, sand and gravel	35
Coal and coke	29
Iron and steel	23
Industrial chemicals	15

The above listing is not additive in that many facilities have the capability of handling two or more materials. Terminals for mooring services and miscellaneous materials complete the list.[7]

Total tonnage by material type that passed through Lock No. 2 on the Monongahela River during 1970 was as follows:[8]

Material		Tonnage-1970	Percent
Coal and coke		16,029,420	74.1
Iron and steel		1,167,000	5.4
Oil and gasoline		1,708,290	7.9
All other		2,722,380	12.6
	Total	21,627,090	100.0

Similar data for the Emsworth Lock on the Ohio River is:[8]

Material		Tonnage-1970	Percent
Coal and coke		13,904,350	57.7
Iron and steel		2,933,199	12.2
Oil and gasoline		3,217,200	13.4
All other		4,021.100	16.7
	Total	24,075,843	100.0

The preceding table is indicative of the predominance of the coal and steel industries in this area.

Irrigation

Use of the Ohio and Monongahela Rivers in Pennsylvania for irrigation is negligible. In 1966, the Corps of Engineers reported that the Pittsburgh standard metropolitan statistical area, which included the upper Ohio River basin plus the lower Monongahela, Allegheny, and Beaver River basins, used only 100 acre-feet per year for irrigation. For comparison, this volume of water would be equivalent to an average annual flow of less than 0.2 cfs.[9]

WATER USES AS DEFINED BY WATER QUALITY STANDARDS

In the submission of Water Quality Standards to the Administrator of the U. S. Environmental Protection Agency, the States listed the uses for each interstate stream in order to determine the applicable water quality criteria. The following delineates the uses of the Ohio and Monongahela Rivers as given by each State's Water Quality Standards.

Pennsylvania

1. Aquatic Life- Warm Water Fish
2. Water Supply - Domestic, Industrial, Livestock, Wildlife and Irrigation
3. Recreation - Boating, Fishing, Water Contact Sports and Natural Area
4. Other - Power, Navigation and Treated Waste Assimilation

West Virginia

1. Water Contact Recreation
2. Water Supply, Public
3. Water Supply, Industrial
4. Water Supply, Agricultural
5. Propagation of Fish and Other Aquatic Life
6. Water Transport, Cooling and Power
7. Treated Wastes Transport and Assimilation

Ohio

1. Public Water Supply
2. Industrial Water Supply
3. Aquatic Life - Warm Water Fish
4. Recreation

GENERAL WATER QUALITY CRITERIA

Each State's Water Quality Standards include general criteria designed to protect the water uses of streams. The following are the general criteria adopted by the respective States and the U. S. Environmental Protection Agency:

Pennsylvania

The water shall not contain substances attributable to municipal, industrial or other waste discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. Specific substances to be controlled include, but are not limited to, floating debris, oil, scum, and other floating materials; toxic substances; substances that produce color, tastes, odors or settle to form sludge deposits.

West Virginia

Certain characteristics of sewage, industrial wastes or other wastes or factors which render waters directly or indirectly detrimental to the public health or unreasonably and adversely affect such waters for present or future reasonable uses, are objectionable in all the waters of the State. Therefore, the State Water Resources Board does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the State.

No sewage, industrial wastes or other wastes entering any of the waters of the State shall cause therein or materially contribute to any of the following conditions thereof, which shall be the minimum conditions allowable:

1. Distinctly visible floating or settleable solids, suspended solids, scum, foam or oily sleeks of unreasonable kind or quality;
2. Objectionable bottom deposits or sludge banks;
3. Objectionable odors in the vicinity of the waters;
4. Objectionable taste and/or odor in municipal water supplies;
5. Concentrations of materials poisonous to man, animal or fish life;

6. Dissolved oxygen concentration to be less than 3.0 parts per million at the point of maximum oxygen depletion;
7. Objectionable color;
8. Objectionable bacterial concentrations;
9. Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed.

Ohio

Minimum conditions applicable to all waters at all places at all times:

1. Free from substances attributable to municipal, industrial or other discharges that will settle to form putrescent or otherwise objectionable sludge deposits;
2. Free from floating debris, oil, scum and other floating material attributable to municipal, industrial or other discharges in amounts sufficient to be unsightly or deleterious;
3. Free from materials attributable to municipal, industrial or other discharges producing color, odor or other conditions in such degree as to create a nuisance;
4. Free from substances attributable to municipal, industrial or other discharges in concentrations or combinations which are toxic or harmful to human, animal or aquatic life.

SPECIFIC WATER QUALITY CRITERIA

In addition to the general criteria, each State adopted specific criteria to protect the water uses of streams. Specific approved criteria adopted by the respective States and the U. S. Environmental Protection Agency for the Ohio River are listed in Table 1. The specific criteria for the Monongahela River in Pennsylvania are identical to the specific criteria of the Ohio River except that there is not a fluoride criterion for the Monongahela River. Table 2 enumerates Ohio's proposed temperature criteria for the Ohio River.

TABLE 1

Current Approved Specific Criteria - Ohio River

	Pennsylvania 1/	West Virginia		Ohio	
		Present	Changes Effective 10/72	Present	Proposed
Ranges					
pH (Standard Units)	6.0 - 8.5	5.0-9.0	6 - 8.5	5.5-9.0 6.5-8.5*	6.0-8.5
Maximums					
Temperature (°F)	87°				
(May - November)	-	93° 2/	87°	-	3/
(December - April)	-	73° 2/	73°	-	3/
Temperature Change (over natural)	5°				
Threshold Odor No. at 60° C	24	24*	8*	24*	
Total Coliforms/100 ml		1000**		1000**	
For 5/15 - 9/15	1000**				
For 9/16 - 5/14	5000**				
Radioactivity (p Ci/1)					
Gross Beta	-	1000		1000	
Dissolved Strontium - 90	-	10			
Dissolved Alpha	-	3			

NOTES: * - Denotes daily average
** - Denotes monthly average

1/ Specific criteria for the Monongahela River in Pennsylvania is identical to those for the Ohio River.

2/ Approved by the Administrator of the U. S. Environmental Protection Agency as interim criteria only.

3/ See Table 2

Table 1 (cont.)

	Pennsylvania	West Virginia		Ohio	
		Present	Changes Effective 10/72	Present	Proposed
Maximum Concentrations (mg/l)					
Toxic Substances	-	1/10 TLm_{48}	1/10 TLm_{96}	1/10 TLm_{48}	
Arsenic	-	0.01		0.05	
Barium	-	0.5		1.0	
Cadmium	-	0.01		0.01	
Chromium (hexavalent	-	0.05		0.05	
Lead	-	0.05		0.05	
Silver	-	0.05		0.05	
Nitrates	-	45.0		-	
Phenol	0.005	0.001		-	
Cyanide	-	0.025		0.80	
Fluoride	1.0 4/	1.0		2.0	
Selenium	-	0.01		0.01	
Iron (Total)	1.5	-		-	
Manganese (Total)	1.0	-		-	
Dissolved Solids	750.0	-		750.0	
Dissolved Solids	500.0**	-		500.0**	
Minimum Concentrations (mg/l)					
Dissolved Oxygen	4.0	3.0	5.0		4.0
For 16 of any 24 hours		5.0	-		-
Daily average	5.0	-	-		5.0

4/ Not applicable to Monongahela River

Table 2

Ohio's Proposed Temperature Criteria for the Ohio River

Maximum Temperature (°F) During Month

January	50	July	89
February	50	August	89
March	60	September	87
April	70	October	78
May	80	November	70
June	87	December	57

SOURCES OF WASTES

GENERAL

Waste discharges from municipal and industrial sources have deleterious effects upon receiving waters in the conference area. Municipal wastes contain oxygen demanding materials that can reduce dissolved oxygen in a stream; severe reduction of dissolved oxygen can limit or destroy fish, fish food organisms and other aquatic life. Municipal wastes also contain high numbers of intestinal bacteria from man's excretions, including pathogenic organisms. Objectionable surface scums, sludge deposits and turbidity in a stream may result from municipal waste discharges that contain greasy substances, settleable solids and suspended solids.

Industrial wastes may also contain oxygen demanding materials, settleable and suspended solids, and greasy substances and oils. In addition, some industrial wastes contain objectionable chemicals and toxic substances that can taint fish flesh, kill aquatic life and damage a water source for use as a municipal supply. Industries use water extensively for cooling purposes. Heated waters reduce the dissolved oxygen saturation concentration of a water body and increase the biochemical oxidation of organic wastes, further reducing the dissolved oxygen content.

Limited data are available on industrial and municipal discharges to the Ohio and Monongahela Rivers in Pennsylvania, although some sources have been documented quite thoroughly. Personnel of the U. S. Environmental Protection Agency obtained available data (1965 to present) on these discharges from the files of the Pennsylvania Department of Environmental Resources.[10] Tables 3 and 4 list municipal wastes sources discharging to the Ohio and Monongahela Rivers in the area. Tables 5 and 6 are similar listings for major industrial discharges to the Ohio and Monongahela Rivers. Other industrial dischargers to these Rivers are listed in Tables 7 and 8.

TABLE 3

SOURCES OF MUNICIPAL WASTES

OHIO RIVER-PITTSBURGH TO EAST LIVERPOOL, OHIO (River Mile 42)

River Mile	Name	Type of Treatment	Bacterial Loads*				Oxygen Demand Loads **			
			Sewered Population	% Bacteria Removed by Treatment	Discharged to Watercourse		P. E. Before Treatment	% Removed by Treatment	Discharged to Watercourse	
					BPE	% of Tot.			P. E.	% of Tot.
3.1R	Allegheny County Sanitary Authority	Primary $+Cl_2$	1,300,000+	97.9	52,000	84.1	1,300,000	31.0	897,000	91.6
7.6R	Dixmont State Hospital (Killbuck Twp.)	Secondary $+Cl_2$	2,200	98.5	55	0.1	2,200	90.0	220	0.0
8.6R	Glenfield Borough	None	740	0	740	1.2	740	0.0	740	0.1
10.2L	Coraopolis Borough	Intermediate $+Cl_2$	19,000	95.0	950	1.5	19,000	48.2	9,900	1.0
11.3R	Osborne-Sewickley Boroughs	Intermediate $+Cl_2$	8,000	95.0	400	0.6	8,000	50.0	4,000	0.4
13.9R	Edgeworth-Leetsdale Borough	Intermediate $+Cl_2$	2,200	95.0	33	0.1	2,200	47.0	1,170	0.1
14.5L	Crescent Twp.-Heights Municipal Authority	Secondary $+Cl_2$	2,500	98.5	37	0.1	2,500	95.0	130	0.0
15.9R	Ambridge Borough	Primary $+Cl_2$	17,000	92.5	1,275	2.1	17,000	35.0	11,000	1.1
20.0L	Aliquippa Borough	Primary $+Cl_2$	30,000	92.5	2,250	3.6	30,000	35.0	19,500	2.0
20.3R	Baden Borough	Primary $+Cl_2$	12,000	92.5	900	1.4	12,000	35.0	7,800	0.8
21.6R	Conway Borough	Primary $+Cl_2$	2,500	92.5	187	0.3	2,500	35.0	1,620	0.2
24.4L	Monaca Borough	Primary $+Cl_2$	8,500	92.5	638	1.0	8,500	35.0	5,520	0.6
25.0R	Rochester-Rochester Twp. (Rochester Municipal Auth.)	Primary $+Cl_2$	13,000	92.5	975	1.6	13,000	35.0	8,450	0.9
26.2R	Beaver Borough									
	Plant #1	Primary $+Cl_2$	7,500	92.5	562	0.9	7,500	35.0	4,880	0.5
	Plant #2	Secondary $+Cl_2$	2,500	98.5	37	0.1	2,500	90.0	250	0.0
28.0R	Borough Twp. MBA (Inc. Vanport)	Primary $+Cl_2$	2,900	92.5	218	0.3	2,900	35.0	1,880	0.2
36.3R	Midland Borough	Primary $+Cl_2$	8,000	92.5	600	1.0	8,000	35.0	5,200	0.5
		TOTALS	1,438,540		61,857	100.0	1,438,540		979,260	100.0

*All bacterial loads except that of the ALCOSAN plant were estimted.

**All oxygen demand loads were estimated except the following plants - ALCOSAN, Dixmont State Hospital, Coraopolis, Osborne-Sewickley, Edgeworth-Leetsdale, Crescent and Beaver Plant #2.

Table 4

SOURCES OF MUNICIPAL WASTES

MONONGAHELA RIVER-ALLENPORT TO PITTSBURGH

River Mile	Name	Population Served	Type of Treatment
12	Duquesne	15,000	Secondary + chlorination
14	McKeesport	75,000	Intermediate + chlorination
16	Dravosburg	3,000	Secondary + chlorination
18	Glassport	6,500	Secondary + chlorination
20	Clairton	16,000	Primary + chlorination
25	Elizabeth Borough	3,200	Intermediate + chlorination
29	New Eagle	2,620	Secondary + chlorination
32	Monongahela	8,390	Primary + chlorination
34	Donora	31,500	Secondary + chlorination
39	Monesson	18,425	None
41	Charleroi	8,150	Secondary + chlorination
43	Belle Vernon	5,000	Secondary + chlorination
44	Fayette City	1,160	Primary + chlorination
46	Allenport	7,000	None

TABLE 5

MAJOR INDUSTRIAL DISCHARGERS

OHIO RIVER - PENNSYLVANIA

River Mile	Industry	Discharge MGD	Critical Constituents* (pounds/day)	Remarks
2.3L	Duquesne Light Co. Reed Power Station	406.0	Heat	Coal Spillage
5.1L	Marquette Cement Co.	0.6	SS-2,100	
5.2L	Shenango, Inc.	28.0	ALK-88,000; BOD_{20}-14,800; CN-480; Oil-X; Phenols-280; SS-9,380	
5.2L	USS Chemicals	2.0	ALK-1,000; COD-1,000; BOD-320; V.S.-3,700; SS-1,100	
6.4L	NOPCO Chemical Co.	0.17	BOD-2,000; D.S.-11,600; Oil-X	
6.9L	Neville Chemical Co.	0.15	Phenols-X	
7.2L	Shenango, Inc.	4.0	Fe-200: Heat	
10.8L	Pittsburgh Forging Co.	1.4	Heat	Cooling Water
11.3L	Blaw-Knox Co.	1.0	Heat	Cooling Water
11.5L	Russel Birdsale & Ward	0.3	CN-X	
15.2L	Duquesne Light Co. Phillips Power Station	480.0	Heat	Cooling Water
15.9R	H. K. Porter Co.	0.23	CN-X;Fe-X; Zn-X	

TABLE 5 (cont.)

River Mile	Industry	Discharge MGD	Critical Constituents* (pounds/day)	Remarks
16.8L	Jones and Laughlin Steel Co. Aliquippa Works	227.0	BOD-12,000; BOD_{20}-26,700; CN-207 to 445; T.Fe-9,800 to 19,000; Oil-X; Phenols-151 to 281; SS-28,000 to 29,000; SO_4-44,000 to 150,000; TS-250,000	pH 1.2 to 12.0
17.0R	Wykoff Steel Co.	0.2	T.Fe-633; D.Fe-592	
18.0R	Armco Steel Corp Armco Division	8.0	BOD_{20}-3,340; T. Fe-530	
23.0R	Pennsylvania-Central RR	0.14	ABS-X; BOD-X; D.S.-X; Oil-X	
23.9L	Pittsburgh Screw & Bolt Co.	0.06	BOD_{20}-240; SO_4-287	
23.9L	VASCO (Vanadium Alloy Steel Company)	1.1	ALK-9,200; T.Fe-133; SS-1,670	pH-12.2
24.0R	Valvoline Oil Company		Oil-230	
24.2L	Pittsburgh Tube Company	0.27	ACD-X; Fe-X	pH-3.0
24.3L	Pittsburgh Tool Steel Wire Co.	0.02	D.Fe-60; T.Fe-67; SO_4-390; SS-154	pH-3.0
26.5R	Superior Drawn Wire	0.01	T.Fe-168; SO_4-250; SS-80	pH-3.1

TABLE 5 (cont.)

River Mile	Industry	Discharge MGD	Critical Constituents* (pounds/day)	Remarks
28.1L	Westinghouse Electric Co.	0.45	SO_4-1,400	
28.5L	St. Joseph Lead Company	109.7	Heat-X; SS-4,100	
29.7L	Sinclair-Koppers Company	70.0	BOD-11,900	pH-2.7 to 11.4
34.5L	Duquesne Light Co. Shippingport Atomic Power Station	150.0	Heat	Cooling
36.5R	Crucible Steel Company	66	Fe-22,800; Oil-10,000; Phenol-433; SS-118,000	

*KEY TO TABLE

WASTE CONSTITUENTS

ABS - Alkylbenzene Sulfonate

ACD - Acid, equivalents of $CaCO_3$

ALK - Alkalinity, equivalents of $CaCO_3$

BOD - Biochemical Oxygen Demand, 5-day

BOD_{20} - Biochemical Oxygen Demand, 20-day

CN - Cyanide

COD - Chemical Oxygen Demand

Cr - Chrome

D - Dissolved

Fe - Iron

pH - Hydrogen Ion Concentration

S - Solids

SS - Suspended Solids

SO_4 - Sulfate

T - Total

V - Volatile

X - Insufficient data

Zn - Zinc

River Mile - Miles from Pittsburgh, R and L denote right or left bank looking downstream.

TABLE 6

MAJOR INDUSTRIAL DISCHARGERS

MONONGAHELA RIVER-ALLENPORT TO PITTSBURGH

River Mile	Industry	Critical Constituents* (pounds/day)	Remarks
7-9	U. S. Steel - Homestead Works	Phenol-127 Cyanide-178 Suspended Solids- 920,000 Oil-X*	Granulated Slug
10.9-11.3	U. S. Steel-Braddock Edgar Thompson Works	Phenol-81 Cyanide-320	
13.2	U. S. Steel-Duquesne Works	Phenol-160 Cyanide-62	
14.7-15.5	U. S. Steel-McKeesport National Tube Works	Phenol-25 Cyanide-90 Oil-X	
17.4-17.8	U. S. Steel-Irvin Works	Oil-3500 Fe-3200	pH-2.7
18.4-21.8	U. S. Steel-Clairton Works	Phenol-210 Oil-X Tar-X	
23.7	Pennsylvania Industrial Chemical Company	Phenol-47	
39.3-40.4	Wheeling-Pittsburgh Steel Corp.-Monesson Plant	Phenol-2000 Cyanides-180 Suspended Solids-20,000 Oil-X	

*X-Insufficient Data

TABLE 7

OTHER INDUSTRIAL DISCHARGERS

OHIO RIVER - PENNSYLVANIA

River Mile	Name	Remarks
0.0R	Tri-Point Ice Cream Company	All wastes to ALCOSAN[1]
1.2R	General Dynamics Corporation Liquid Carbonics Division	Cooling Water only
1.3R	Cowan Manufacturing Company	All wastes to ALCOSAN
3.0L	Gordon Terminal Service Co.	
3.5L	Federal Enamel and Stamp Co. (FESCO)	
4.0R	Suburban Laundry	Will connect to Bellevue System
4.1L	National Cylinder Gas Co. Davis Island Yards	All wastes trucked away
5.1L	Matlack Inc.	All wastes to ALCOSAN
5.8L	Gulf Oil Co.	All wastes trucked away
7.7L	Vulcan Materials Co.	
8.8L	Blaw-Knox Company Lewis Works	
10.3L	Sterling Varnish Co.	Cooling water only
14.5R	Elwin G. Smith & Co., Inc.	
14.6R	Bethlehem Steel Company	
14.8	Copper Range Company C. G. Hussey & Company	

[1] Allegheny County Sanitary Authority

TABLE 7 (cont.)

River Mile	Name	Remarks
14.8R	J & J Rocket Carwash, Inc.	
15.9L	Gavlick Construction Company	
16.0R	American Bridge Company	
16.9L	H. K. Porter Company	
16.9R	H. H. Robertson Company	
28.5R	Petroleum Solvents, Inc.	
33.8L	Shippingport Sand and Gravel Co.	

TABLE 8

OTHER INDUSTRIAL DISCHARGERS

MONONGAHELA RIVER-ALLENPORT TO PITTSBURGH

River Mile	Industry
3.4	Jones & Laughlin Steel Corporation
5.7	American Oil
7.0	Mesta Machine
9.2	Ashland Oil Company
9.4	Bethlehem Steel
13.8	Firth Sterling Steel Company
16.1	Boswell Oil Company
16.2	Gateway Asphalt Company
18.4	Copperweld Steel Company
21.8	Jones & Laughlin Steel Corporation
24.5	Jones & Laughlin Steel Corporation
24.7	Ashland Oil & Refining Company
30.3	U. S. Steel Corporation
30.7	Monongahela Iron and Metal Company
32.7	Monongahela Iron and Metal Company
38.9	Page Steel & Wire Company
40.8	American Oil
43.3	Guttman Oil Company
46.8	Wheeling-Pittsburgh Steel Company

BACTERIAL LOADS (MUNICIPAL)

Coliform bacteria in raw and treated sewage are used to indicate the density of sewage associated bacteria, including disease-producing pathogens. Though generally harmless in themselves, coliform bacteria have been considered indicators of the presence of these pathogenic bacteria. Bacteria loads are often expressed in terms of a bacterial population equivalent (BPE), which is the average amount of coliform bacteria normally contained in sewage contributed by one person in one day. One BPE is equal to 400 billion coliform bacteria per day.

Sewage treatment plants can drastically reduce the amount of bacteria in sewage depending upon capacity, type of disinfection practiced and the skill of the plant operators. Table 3 is a list of the major sewage treatment plants that discharge to the Ohio River in Pennsylvania. From the table, it can be seen that the ALCOSAN system contributes 84.1 percent of the bacterial load to the Ohio River in Pennsylvania. This load is equivalent to a raw sewage discharge from 52,000 people. Table 4 shows that Monesson and Allenport discharge untreated sewage from a total of 25,400 people into the Monongahela River.

OXYGEN DEMANDING LOADS (MUNICIPAL AND INDUSTRIAL)

The oxygen demand of municipal and industrial wastes, as measured by the biochemical oxygen demand (BOD) test, indicates their potential for reducing the dissolved oxygen of a stream.

BOD usually refers to a 5-day test (BOD_5), but in some cases wastes are tested for 20 days (BOD_{20}). For sewage, the 5-day test usually suffices. The BOD loadings are often expressed in population equivalents (PE), one population equivalent being equal to 0.17 pounds per day of BOD_5. Occasionally, industrial waste loads are also expressed in population equivalents.

Table 3 contains a tabulation of estimated population equivalents of municipal discharges to the Ohio River in Pennsylvania. The ALCOSAN plant at river mile 3.1 discharged the equivalent of untreated wastes from approximately 900,000 people; this load represented 94 percent of the total oxygen demand from all municipalities that discharged to the Ohio River in Pennsylvania. ALCOSAN's discharge contained the equivalent of 121,000 pounds per day of BOD_5.

In 1967 and 1968, the ALCOSAN plant discharged approximately 128,000 pounds per day of BOD_5 from an influent load of less than 200,000 pounds per day. For the future, the Commonwealth of Pennsylvania has restricted the total loadings from the ALCOSAN plant to 60,000 pounds per day of BOD_5. This restriction, at present, would call for a 70 percent reduction of the total load of 200,000 pounds per day (BOD_5). The Commonwealth of Pennsylvania is presently requiring all other municipal plants to install facilities to removal 85 percent of the BOD_5. ORSANCO's proposed effluent standards call for a 90 percent removal of BOD_5 at the ALCOSAN plant.

Information was not available on the oxygen demand loads from municipal wastes along the Monongahela River in this area. Using standard sanitary engineering figures, however, it could be estimated that the municipal systems in Table 4 discharge about 16,000 pounds per day of BOD_5, including 4300 pounds per day in untreated sewage.

The limited data available on industrial wastes indicate that the total industrial oxygen demand may be greater than the municipal oxygen demand after municipal secondary treatment facilities become a reality. Oxygen demand data from the Commonwealth showed that only seven industrial plants accounted for an oxygen demand of approximately 60,000 pounds per day of BOD_5; the information was not complete for these seven. The Jones and Laughlin plant at Aliquippa alone discharged about 27,000 pounds per day of BOD_{20} from the eight of 34 outfalls for which data were available. Shenango, Inc. on Neville Island accounted for a daily load of 14,800 pounds of BOD_{20}. BOD loading data were not available from other major industries such as the Crucible Steel Company plant at Midland. These figures are presented only to show the relative minimum loadings since complete data were not available. There was no information available on BOD loadings from industries along the Monongahela River.

PHENOL SOURCES

Coke, a major raw material in iron and steel production, is made by heating coal in the absence of air. Process water used to quench the hot coke oven gas becomes burdened with many organic and inorganic materials, notably phenolic compounds. These phenolic compounds contaminate receiving waters if not removed from the waste water.

Some coke plant operations now use water containing phenols as quench water for the hot coke. Although this may reduce the load of phenols discharged by the coke plant, it increases the loadings from the blast furnaces that subsequently receive the coke. A major problem is that the great volumes of flue gas wash water containing phenols from blast furnaces limit effective means of treatment as compared to smaller flows in the coke plant.

Data concerning discharges of phenols in this reach of the Ohio and Monongahela Rivers are scarce. Nevertheless, information in the Commonwealth files indicates that approximately 1,000 pounds of phenol per day enter the Ohio River. The Crucible Steel plant at Midland discharged 433 pounds per day, while Jones and Laughlin, Aliquippa and Shenango, Inc. Neville Island, both accounted for 280 pounds per day. Phenolic materials have been detected at other discharges but data were incomplete. EPA conducted an effluent sampling program of major industries along the lower Monongahela River in early 1971. Table 6 shows that approximately 2500 pounds per day of phenol was discharged to the Monongahela River during this period.

OIL SOURCES

Cold rolling mills in the steel industry use large volumes of oil that often contaminate wastewaters. Oils can also derive from machining operations, lubricating oils and various other metal processing operations. In addition, large volumes of gasoline, oil and oil derivatives are shipped, loaded and unloaded, on these navigable streams.

The Commonwealth's files contained information of oil loads from only the Crucible Steel Company at Midland, which discharged about 10,000 pounds per day of oil in a water-oil emulsion. EPA biologists, during the study in May-June, 1970, reported that "masses of dense globs of oils were observed floating downstream from a series of wastewater outfalls belonging to the Jones and Laughlin Steel Company at river mile 16.9. Severe oil pollution was apparent downstream from the Crucible Steel Company's wastewater outfalls at river mile 36.3".[11]

EPA's industrial effluent sampling program in early 1971 revealed that oil was evident in several industrial discharges to the Monongahela River. U. S. Steel's Irvin Works had a discharge that contained about 3500 pounds per day of oil.

HEAT SOURCES

The largest unnatural sources of heat to these two rivers in this area were six thermal electric power plants. The following list shows the plants, their capacities and an estimated rate at which heat is added to the rivers:

Name	Capacity (megawatts)	Estimated Heat Load Rate (billion BTU's/hr)
Duquesne Light Co., Elrama Plant	425	2.29
West Penn Power Co., Mitchell Plant	449	2.42
Duquesne Light Co., Reed Plant	180	0.97
Duquesne Light Co., Phillips Plant	315	1.70
Duquesne Light Co., Shippingport	90	0.76
St. Joseph Lead Company	100	0.54
Total	1,559	8.68

The two plants along the Monongahela River, the Elrama and Mitchell Plants, would theoretically raise the temperature of the river 41.9° F during a low flow of 500 cfs. The remaining plants in the above table would theoretically raise the Ohio River 5.4° F during a low flow of 3300 cfs. Other heat sources were major iron and steel plants which use about 80 percent of their total water usage for cooling.

SUSPENDED SOLIDS (MUNICIPAL AND INDUSTRIAL)

Steel mills discharge large loads of suspended solids. Flue gas wash waters from blast furnaces and basic oxygen furnaces contain high concentrations of suspended solids in their high flow discharges. Process waters from rolling mills also contain considerable amounts of suspended solids. Municipal treatment plants, depending on their removal efficiencies, are another source of suspended solids.

The largest municipal source of suspended solids in this area was the ALCOSAN plant which discharged approximately 54 tons per day. Data were insufficient to obtain the total amount of suspended solids from the other municipal treatment plants.

From data available, industrial plants in this area discharged about 83 tons per day of suspended solids into the Ohio River. Crucible Steel at Midland accounted for 59 tons per day of suspended solids, Jones and Laughlin at Aliquippa was responsible for 14 tons per day. The U. S. Steel Plant at Homestead discharged about 450 tons per day of granulated slag into the Monongahela River.

IRON

Acid wastewaters from pickling operations in metal processing plants contain considerable amounts of dissolved iron, both from the pickling solution and the acid rinse waters. Rolling mills can discharge large quantities of suspended and settleable iron oxides (mill scale). In addition, flue gas wash waters from blast furnaces and basic oxygen furnaces contain significant quantities of suspended iron.

From the limited data available, the amount of iron discharged to the Ohio River in this area was approximately 22 tons per day. The Crucible Steel Company plant at Midland discharged about 11 tons per day; the Jones and Laughlin plant at Aliquippa accounted for another 9 tons per day. Data on the discharge of iron were not available for most industries in this area.

CYANIDES

The discharge of cyanide to water bodies is critical to the aquatic environment because of the toxic nature of the material. Cyanides are present in wastewaters from coke plants, by-product plants and blast furnace flue gas wash water. Cyanides are also used extensively in metal plating processes, thus becoming another source of cyanides.

The limited data available indicate that the Ohio River receives about 925 pounds per day of cyanides. Information on cyanide discharges were available for only Shenango, Inc., on Neville Island and Jones and Laughlin at Aliquippa; these loadings were 480 and 445 pounds per day, respectively. The effluent sampling program performed by EPA in early 1971 showed that about 1,000 pounds per day of cyanide were being discharged by industries into the Monongahela River.

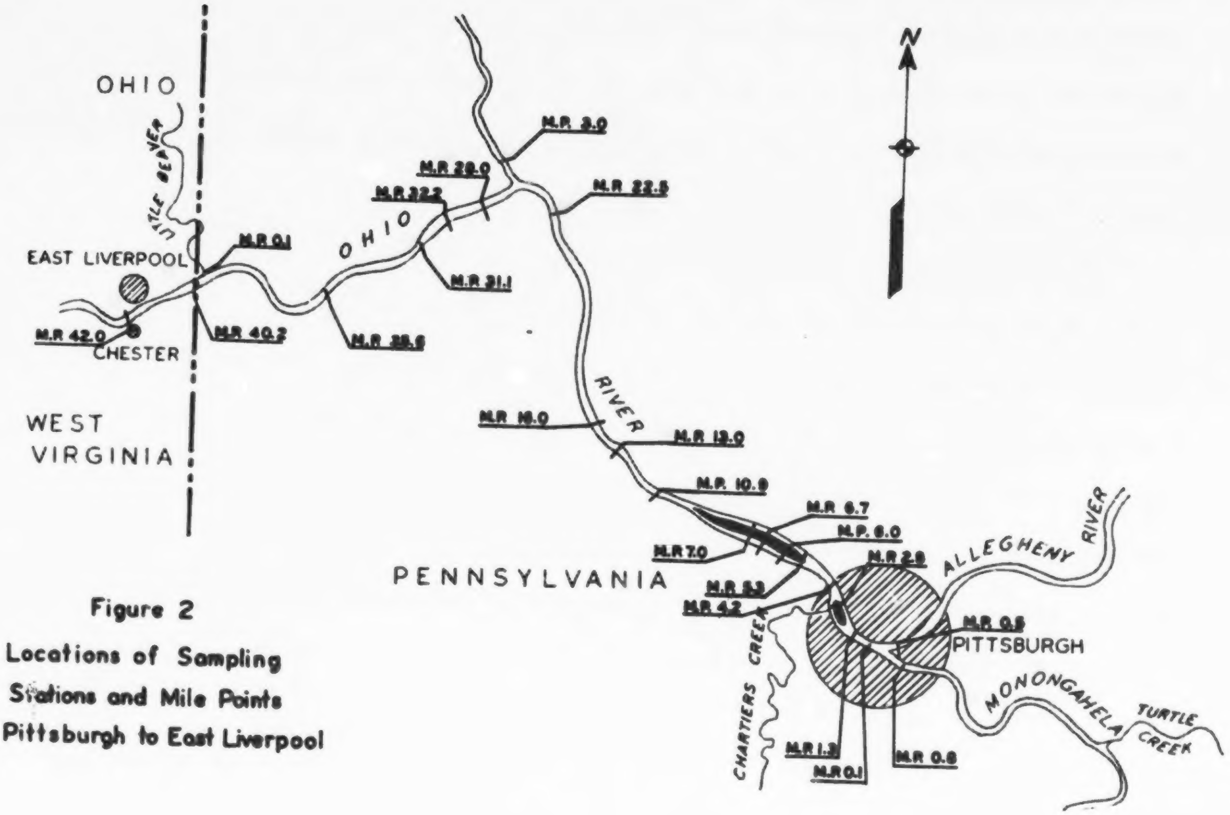

N
OHIO
LITTLE BEAVER
EAST LIVERPOOL
CHESTER
WEST VIRGINIA
PENNSYLVANIA
OHIO
RIVER
ALLEGHENY RIVER
MONONGAHELA
TURTLE CREEK
CHARTIERS CREEK
PITTSBURGH
M.P. 42.0
M.P. 40.2
M.P. 0.1
M.P. 35.6
M.P. 31.1
M.P. 32.2
M.P. 28.0
M.P. 3.0
M.P. 22.5
M.P. 16.0
M.P. 13.0
M.P. 10.9
M.P. 6.7
M.P. 6.0
M.P. 7.0
M.P. 2.9
M.P. 5.3
M.P. 4.2
M.P. 0.5
M.P. 1.3
M.P. 0.1
M.P. 0.8

Figure 2

Locations of Sampling Stations and Mile Points Pittsburgh to East Liverpool

EFFECT OF POLLUTION ON WATER QUALITY AND USES

Various studies and surveys have been made to define the effects of pollution on water quality and water uses in the Ohio and Monongahela Rivers in this area. In addition, the U. S. Environmental Protection Agency maintains several sampling stations in the area as part of its Pollution Surveillance Program.[12]

Figure 2 and Table 9 describe 22 stations that were sampled for physical, chemical and bacteriological analysis by EPA in a special study of the Ohio River in May and June, 1970. Five of these stations coincide with Pollution Surveillance stations that EPA has maintained since 1968:

River Mile	Description
0.5	Allegheny River at Sixth Street Bridge
0.8	Monongahela River at Smithfield Street Bridge
16.0	Ohio River at South Heights, Pennsylvania
3.0	Beaver River near mouth at Route 18 Bridge
40.2	Ohio River at Pennsylvania-West Virginia-Ohio State Line

Concurrent with the special study in May and June, 1970, the National Field Investigations Center, made a study on the biological effects of pollution in this section of the Ohio River.[11]

The Ohio River Valley Water Sanitation Commission maintains an electronic monitor at South Heights, Pennsylvania, that provided additional data.[13] The ORSANCO station is near the EPA surveillance station at South Heights. Another source of data was an intensive study done by the University of Pittsburgh in 1964 and 1965 on water quality in the

TABLE 9
SAMPLING STATIONS
SPECIAL STUDY-EPA-OHIO RIVER
May-June, 1970

Description	M. P.
Allegheny River at Sixth Street Bridge	0.5
Monongahela River at Smithfield Bridge	0.8
Ohio River near Seaplane Dock	1.3
Chartiers Creek at Bridge near mouth	0.1
Ohio River-Back Channel of Brunot Island @ Power Line	2.8
Ohio River opposite M & O Dredging Company Dock	4.2
Ohio River, Back Channel at Neville Island @ P & LE RR Bridge	5.3
Ohio River, Back Channel at Neville Island opposite Pittsburgh-DesMoines Dock	7.0
Ohio River, opposite Upstream Lock Wall Emsworth Dam	6.0
Ohio River, opposite Downstream Arrival Point for Emsworth Dam	6.7
Ohio River, opposite Sewickley Coast Guard Depot Light	10.9
Ohio River, Upstream of Warning Light for Dashields Dam	13.0
Ohio River opposite American Bridge Dock	16.0
Ohio River opposite C C. Bunton Navigation Light	22.5
Beaver River at Rt. 18 Bridge	3.0
Ohio River, Upstream of Vanport Highway Bridge	28.0
Ohio River opposite Montgomery Dam Upper Light	31.1
Ohio River opposite Downstream Arrival Point for Montgomery Dam	32.2
Ohio River, Navigation Channel, opposite Phillis Island Light	35.6
Little Beaver River at Highway Bridge near mouth	0.1
Ohio River opposite East Liverpool Water Intake	40.2
Ohio River opposite Chester, West Virginia Water Intake	42.0

Allegheny, Monongahela, and Ohio Rivers.[14] This study provided data at the Pollution Surveillance stations plus an additional station on the Ohio River at Rochester, Pennsylvania, river mile 25.2.

BACTERIAL POLLUTION

Municipal sewage contains enormous numbers of bacteria, among which there are frequently pathogenic bacteria, derived from human excreta. These pathogenic bacteria can cause gastro-intestinal diseases such as typhoid fever, dysentery and diarrhea. Infectious hepatitis, a virus disease, can also be caused by ingesting sewage-polluted water. Eye, ear, nose, throat or skin infections may result from bodily contact with such water. As the densities of pathogenic bacteria are reduced by sewage treatment or forces of natural purification, the hazards of contacting disease are proportionately reduced.

Sewage also contains readily detectable coliform bacteria, which typically occur in excreta or feces and are always present in sewage-polluted water. Though generally harmless in themselves, coliform bacteria have been considered indicators of the presence of pathogenic bacteria. The coliform group includes several types of bacteria which may come from sources other than excreta.

Testing for fecal coliform bacteria is becoming more popular as an indicator of bacterial pollution because fecal coliform bacteria specifically inhabit the intestinal tract of man and warm-blooded animals. The presence of these organisms in water is positive proof of fecal contamination which may contain associated, disease producing organisms.

Coliform Bacteria

Presently, the States of Pennsylvania, West Virginia and Ohio use the total coliform group as an indicator of bacterial pollution. The State of Ohio is in the process of changing its recreational criterion for bacteria to the fecal coliform group. Specific bacterial criteria by State are listed in Table 1, on page 24.

The survey by the University of Pittsburgh in 1964-65 included analyses for bacterial indicators. Table 10 lists the monthly average of the total coliform densities found in the Ohio, Allegheny, and Monongahela Rivers. Both the Ohio River at Rochester and the Monongahela River at Pittsburgh exceeded Pennsylvania's present recreational criterion of 1,000 total coliforms per 100 ml in all five months that were designated as recreational. In addition, both rivers exceeded the municipal water supply criterion of 5,000 total coliforms per 100 ml in seven of 12 months.

Pollution Surveillance of the U. S. Environmental Protection Agency has taken monthly samples at five stations in this area since June, 1968. Table 11 is a tabulation of the total coliform densities found in the monthly samples at these stations. To date, the Monongahela River at Pittsburgh has exceeded the bacterial criterion for recreation in 10 of 13 recreational months; the water supply criterion was exceeded in 10 of 23 months. Data were similar at the Ohio River

TABLE 10

UNIVERSITY OF PITTSBURGH STUDY
MONTHLY AVERAGE TOTAL COLIFORM DENSITY
(Number per 100 ml)

River River Mile	Ohio 25.2	Monongahela 0.8	Allegheny 0.5
October, 1964	15,600	8,700	2,900
November	9,900	77,800	56,000
December	3,300	16,500	1,500
January, 1965	4,800	2,300	2,100
February	3,900	320	570
March	2,400	1,300	818
April	2,000	1,300	419
May	25,300	3,100	5,300
June	15,100	15,700	8,500
July	13,800	26,600	7,600
August	15,200	17,100	4,800
September	7,400	14,000	33,400
Total Number of Samples	77	76	76

TABLE 11
U. S. ENVIRONMENTAL PROTECTION AGENCY POLLUTION SURVEILLANCE

Total Coliform Density - Monthly Sample
(Number per 100 ml)

	Allegheny River	Monongahela River	Ohio River	Beaver River	Ohio River
River Mile	0.5	0.8	16.0	3.0	40.2
Date					
June, 1968	610	520	33,000		2,200
July	15,000	2,800	7,800		2,200
August	7,400	50	320		6,000
September	40,000	26,900	33,000	26,000	3,300
October	42,000	270,000	37,000	48,000	18,000
November	20,000	100	40,000	-	85,000
December	3,200	50	3,500	23,000	15,000
January 1969	1,800	4,300	4,400	62,000	40,000
February	2,300	3,100	3,000	18,000	5,400
March	790	160	40,000	1,500	4,700
April	1,800	24,000	53,000	8,000	6,300
May	6,400	6,000	28,000	47,000	11,750
June	42,000	31,000	34,000	2,900	1,500
July	13,000	400	17,000	8,000	18,000
August	500	7,600	63,000	1,500	39,000
September	23,000	28,000	11,000	1,800	2,200
October	21,000	23,000	34,000	4,100	3,200
November	22,000	390	53,000	26,000	4,100
December	22,000	41,000	63,000	44,000	10,800
January 1970	7,300	2,700	3,700	6,100	3,600
February	1,300	760	3,200	19,000	4,100
March	690	780	790	11,000	3,500
April	-	-	-	7,800	1,900
May	30,000	47,000	96,000	7,800	120,000
June	25,000	2,900	25,000	22,000	4,100
July	2,400	25,000	5,200	9,500	7,800
October	5,500	16,000	77,000	22,000	34,000
November	5,200	13,000	68,000	160,000	100,000
December	4,100	12,000	13,000	64,000	31,000
January 1971	370	1,500	2,600	18,100	2,700
March	4,600	1,300	1,200	26,000	4,900
April	5,600	100	5,700	2,900	3,400
May	4,400	6,200	69,000	16,000	7,700
June	33,000	13,000	31,000	80,000	55,000
July	7,200	71,000	-	-	450,000

station at river mile 16. The Ohio River at this point exceeded Pennsylvania's bacterial criterion for recreation in 11 of 12 months; the water supply criterion was exceeded in 13 of 21 months The bacterial pollution of the Ohio River persists to the Pennsylvania-Ohio-West Virginia State boundary. The Ohio River at the State line exceeded West Virginia's bacterial criterion in all samples; Ohio's recreational criterion in all recreational months; and Ohio's bacterial criterion for water supply in more than 50 percent of the samples.

In the study of the Ohio River in May and June, 1970, total coliform densities of the Ohio River in Pennsylvania exceeded the 5,000 per 100 ml bacterial criterion for water supply in 43 of 44 samples (97.7 percent). In the recreational period, the river's total coliform density exceeded 1,000 per 100 ml in 179 of 180 samples (99.4 percent). Figure 3 shows the average total coliform densities as plotted against river mile of the Ohio River. The bar graph shows that every sampling station downstream from the Allegheny County Sanitation Authority treatment plant to river mile 16 had average coliform densities in excess of 100,000 per ml. These densities exceed Pennsylvania's water supply criterion by twenty-fold and the recreational criterion by a hundredfold. The river at one station (river mile 6.7), had an average total coliform density of over 600,000 per 100 ml or 600 times the approved bacterial criterion for recreation in Pennsylvania.

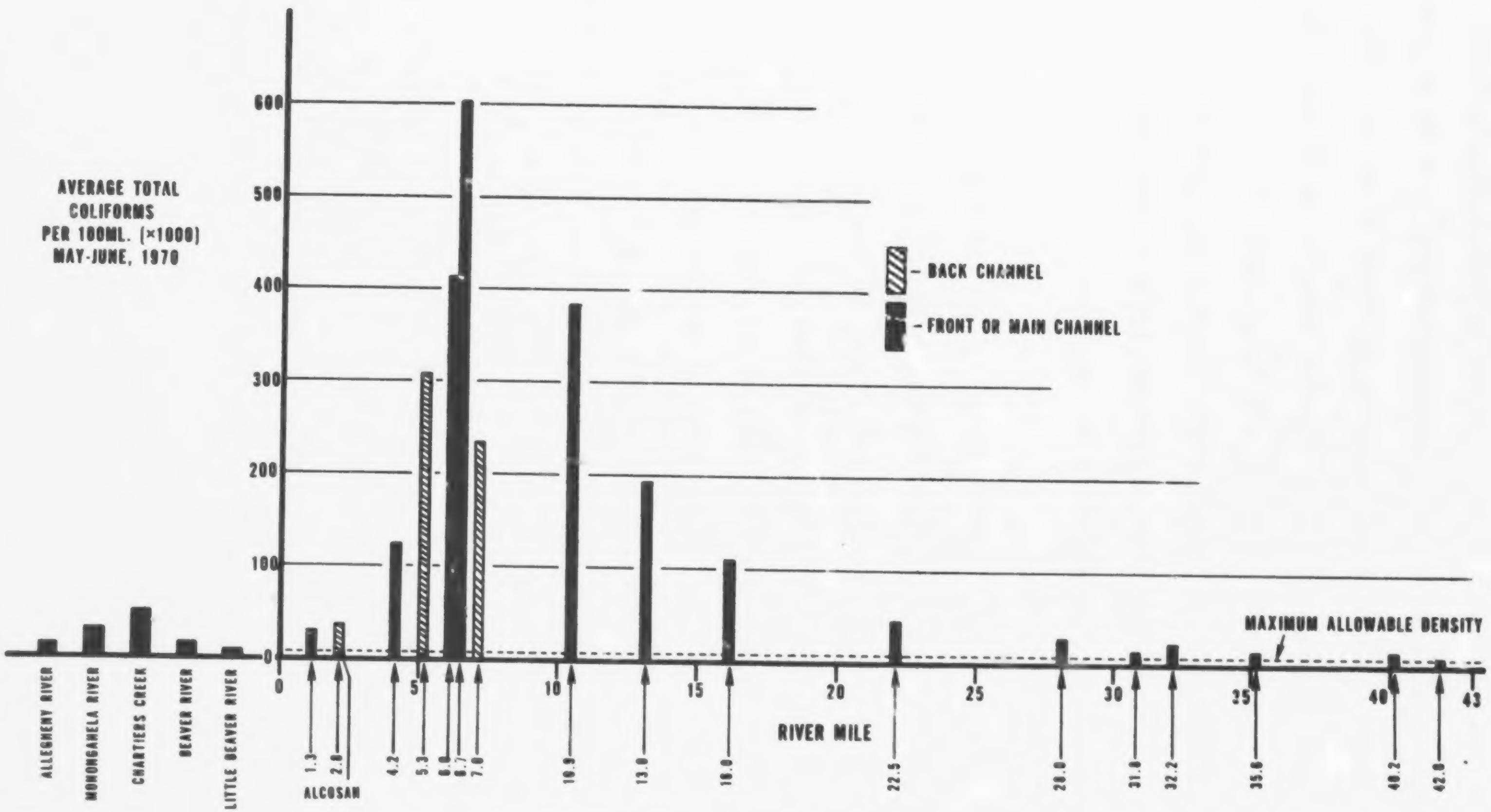


FIGURE 3 SPECIAL STUDY-FWQA-OHIO RIVER MAY-JUNE, 1970

The bacterial pollution of the Ohio River in Pennsylvania persisted to the State line. The river at this point had total coliform densities that exceeded West Virginia's bacterial criterion in all samples, Ohio's bacterial criterion for water supply in 11 of 15 samples, and Ohio's bacterial criterion for recreation in all samples.

Salmonella Bacteria

To emphasize the sanitary significance of the indicator bacteria, a pathogen study was made at selected sampling points during the 1970 survey. While coliform densities indicate the magnitude of fecal pollution which may contain disease-producing organisms, detection of pathogenic *Salmonella* bacteria in water is positive proof that these disease-producing bacteria are actually present.

Modified Moore swab samples were studied for *Salmonella* at the following stations:

River Mile	Description
0.5	Allegheny River at Sixth Street Bridge
0.8	Monongahela River at Smithfield Street Bridge
3.0	Beaver River at Route 18 Bridge
4.2	Ohio River at Bellevue, Pennsylvania
16.0	Ohio River at South Heights, Pennsylvania
40.2	Ohio River at Pennsylvania State Line

Salmonella, an enteric pathogen, was isolated from all these sampling stations, proving the existence of a health hazard.

OXYGEN DEMAND AND DISSOLVED OXYGEN

Domestic sewage and industrial wastes contain organic matter that decomposes and exerts an oxygen demand on receiving waters; this demand subsequently reduces the dissolved oxygen content of receiving streams unless replenished by the atmosphere or photosynthesis. When the oxygen demand exceeds the natural re-oxygenation rate of a stream, the dissolved oxygen content of the stream can be depleted below the level necessary to support fish and other aquatic organisms.

ORSANCO's continuous monitoring of the Ohio River water at South Heights, Pennsylvania, provides an hourly analysis of the dissolved oxygen content in the river for 1966, 1967, 1968 and 1969. ORSANCO reported for these years the percent of days when the daily minimum dissolved oxygen (i. e., hourly value) did not go below 4.0 mg/l as 83.5 percent, 91.0 percent, 92.0 percent and 95 percent, respectively. In essence, this means that for 60 days in 1966, 33 days in 1967, 29 days in 1968 and 18 days in 1969, the minimum hourly dissolved oxygen content of the Ohio River was below 4.0 mg/l, Pennsylvania's dissolved oxygen criterion. The data for 1966 are not complete in that the monitor was inoperative for most of the time during the critical months of July, September and October. ORSANCO's October report for 1969 indicates that the dissolved oxygen content of the river at South Heights had a minimum of 2.2 mg/l and a minimum daily average of 2.6 mg/l. The ORSANCO report also states that the criterion was met only 68 percent of the month.

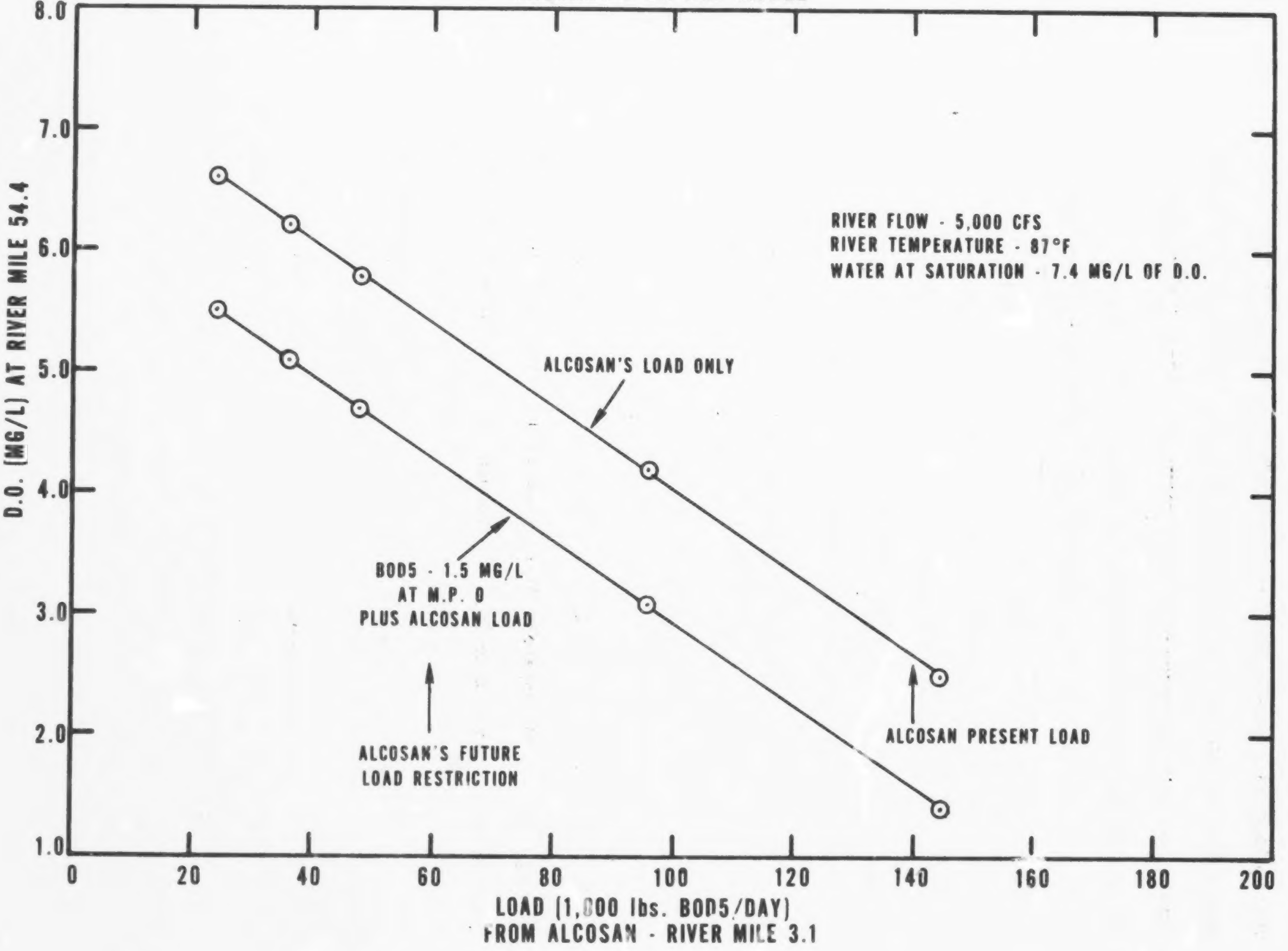
ORSANCO has developed a D.O.-BOD mathematical model for the Ohio River in the Pittsburgh area.[15] The model projects a dissolved oxygen content of 2.7 mg/l at river mile 54.4, based upon ALCOSAN's present loading of 140,000 lb/day of BOD_5, a river temperature of 87° F., and a critical flow of 5,000 cfs. (Figure 4). If it were assumed that the BOD_5 at river mile 0 were 1.5 mg/l, a figure that approximates the average BOD in the Monongahela and Allegheny Rivers, then the dissolved oxygen content at river mile 54.4 would drop to 1.6 mg/l. These projections neglect all other municipal and industrial organic loads to the Ohio River in Pennsylvania.

The State of Pennsylvania has restricted ALCOSAN's total load to the Ohio River at 60,000 lb/day of BOD_5 (i.e., 70 percent reduction of present raw waste load) upon completion of secondary treatment. According to the D.O.-BOD model, this load would reduce the dissolved oxygen of the river at river mile 54.4 to 4.3 mg/l, when the loads of the Monongahela and Allegheny Rivers are included, but other sources are neglected. It may be deduced from the ORSANCO model that the loadings from municipal and industrial sources will reduce the dissolved oxygen content of the river at river mile 54.4 below acceptable criteria with ALCOSAN discharging 60,000 lb/day of BOD_5.

PHENOLS

Phenolic materials have plagued municipal water users of the Ohio River for years. Chlorination of finished water containing excessive phenols imparts a medicinal taste and odor to the water. Experience has shown that phenolic concentrations in the Ohio and Monongahela Rivers are at a maximum in the winter months when the biological

FIGURE 4
ORSANCO'S DO-BOD MODEL



degradation is retarded by cold water temperatures. The following data, from the University of Pittsburgh study in 1964-1965, illustrates the phenolic problem in this area, especially during the winter months:

River	River Mile	Phenolic Concentration (parts per billion) Minimum	Maximum	Average	Average (Dec-Apr)
Monongahela	43.3	0	10	2	1
Youghiogheny	35.5	0	9	2	2
Monongahela	0.8	0	127	23	45
Allegheny	0.6	0	16	2	3
Ohio	25.2	0	46	10	21

The data shows that phenolic concentrations were minimal at river mile 43.3 on the Monongahela River and river mile 35.5 on the Youghiogheny River but greatly increased as the Monongahela River approached the Point in Pittsburgh. The data also showed that the average phenolic concentrations during the winter months were about double the yearly average for the Monongahela River station at river mile 0.8 and the Ohio River at river mile 25.2. Although the University of Pittsburgh study was carried out several years ago, the data serves to show the changes of phenolic concentrations in the river systems in the Pittsburgh area.

More recent data gathered by the U. S. Environmental Protection Agency's Pollution Surveillance, as shown in Table 12, illustrates the violations of Pennsylvania's phenolic criterion of 0.005 mg/l for the Ohio and Monongahela Rivers. The Monongahela River at river

TABLE 12

U. S. ENVIRONMENTAL PROTECTION AGENCY
Phenol Concentration - Monthly Sample
(mg/l)

River Mile	Allegheny River	Monongahela River	Ohio River	Beaver River	Ohio River
	0.5	0.8	16.0	3.0	40.2
Date					
June, 1968	.002	.002	.001	-	.003
July	.000	.000	.000	-	.000
August	.000	.003	.001	-	004
September	.004	.001	.003	.001	.004
October	.003	.004	.000	.005	.001
November	.003	.046	.006	-	.006
December	.000	.045	.009	.007	.006
January, 1969	.056	.056	.009	.009	.010
February	.027	.027	.026	.026	.021
March	.063	.063	.024	.024	.007
April	.013	.013	.010	.010	-
May	.010	.010	.000	.000	.010
June	.001	.001	.002	.002	.004
July	.000	.000	.003	.003	.004
August	.003	.003	.004	.004	.009
September	.000	.000	.000	.000	.003
October	.003	.003	.003	.003	.003
November	.016	.016	.003	.003	.003
December	.030	.030	0.13	0.13	.005
January, 1970	.004	.049	.026	.026	.060
February	.010	.056	.026	.026	.013
March	.005	.004	.000	.000	.009
April	.003	.014	.004	.004	.006
May	.001	.000	.001	.001	.000
June	.010	.009	.001	.001	.000
July	.000	.000	.000	.000	.000
October	.001	.004	.000	.000	.005
November	.004	.007	.005	.009	.009
December	.005	.013	.003	.014	.011
January, 1971	.005	.020	.022	.008	.017
March	.005	.009	.003	.029	.016
April	.002	.022	.009	.004	.007
May	.005	.006	.005	.006	.007
June	.000	-	.003	.003	-
July	-	-			-
Average	.009	.016	.007	.008	.008
Average (Dec.-April)	.021	.034	.013	.014	.016

mile 0.8 had a maximum phenolic concentration of 0.063 mg/l and an average winter concentration of phenols of 0.034 mg/l for the period of record. The Ohio River at the State line had a maximum concentration of 0.060 mg/l of phenols and an average winter concentration of 0.016 mg/l of phenols. The Ohio River at this point consistently exceeded the phenolic criteria of the States of West Virginia and Ohio (i.e., 0.001 and 0.005 mg/l respectively), especially in the winter months. The special study in the warm months of May and June, 1970 showed low phenolic concentrations at most sampling stations.

OIL POLLUTION

Oil pollution is the most visible form of pollution in the Ohio and Monongahela Rivers in this area. Surface oil destroys the aesthetic value of the river and restricts its use for recreation. Most of the complaints lodged by citizens to the U. S. Environmental Protection Agency about this area are in reference to floating surface oils. Oils also coalesce with natural sediment and other suspended material to form bottom deposits that are toxic to bottom animals, thus restricting the use of the river for aquatic life.

During the special study in May and June, 1970, biologists reported that masses of oil were being discharged from the Jones and Laughlin Steel Corporation plant at Aliquippa (river mile 16.9) and from the Crucible Steel Corporation plant at Midland (river mile 36.3).[11] These oils were traced to the State line and were still evident three miles downstream from the State line. Comparison of surface oils, at the State line to the oil below the Jones and Laughlin plant by infra-red spectroscopy showed the oils to be almost identical. Oil from the Crucible Steel plant, which discharges a water-oil emulsion, was not detected below the State line on the surface.

The biologists also collected sediment samples which were analyzed for oil. Sediment oil concentrations (Table 13) ranged from 1 to 12 times greater than concentrations reported in the literature to be toxic to bottom animals.[16] Only pollution-tolerant sludgeworms were found living in the sediments, and their low number indicated toxic conditions. Oil concentrations in the sediment were as high as 21,200 parts per million. Comparison of sediment oils near the Crucible Steel plant (river mile 36.5) and at the State line (river mile 40.2) to the water-oil emulsions present at the surface near the Crucible plant's outfall by infra-red spectroscopy showed that "all three samples may have originated from the same source."[17]

HEAT POLLUTION AND TEMPERATURE

Heated discharges to a river are a form of pollution when increased river temperatures adversely affect aquatic life and the ability of a stream to assimilate treated organic wastes. High water temperatures reduce the oxygen content of a stream by reducing the dissolved oxygen saturation concentration and by increasing the rate of biochemical oxidation of organic waste.

Chemical Analyses of Bottom Sediments of Ohio River, May 1970

River Mile	Left Shore Samples			Right Shore Samples		
	Carbon mg/gm Sediment*	Nitrogen mg/gm Sediment*	Oil mg/gm Sediment*	Carbon mg/gm Sediment*	Nitrogen mg/gm Sediment *	Oil mg/gm Sediment *
4.0	59.0	1.6	6.3	-	-	-
7.0	12.0	0.6	0.8	-	-	-
9.0**	80.0	2.5	3.1	-	-	-
10.8	90.0	2.5	7.7	89.0	2.5	6.2
13.0	-	-	-	76.0	3.6	12.5
18.9	69.0	3.1	10.1	-	-	-
22.5	80.0	2.7	10.3	-	-	-
28.0	96.0	2.9	6.6	17.0	0.6	1.4
31.0	82.0	2.8	20.4	-	-	-
33.0	-	-	-	10.0	0.5	0.8
36.5	51.0	1.2	1.9	99.0	3.8	21.2
37.5	-	-	-	94.0	2.8	10.3
40.2	123.0	1.9	4.2	59.0	2.5	8.1
43.3	51.0	1.6	5.1	71.0	1.8	4.7
Tributaries						
Monongahela R. (M-0.9)	74.0	2.1	10.0	66.0	2.5	10.5
Chartiers Creek (2.4-0.3)	44.0	3.1	7.7			
Beaver R. (25.5-0.5)	69.0	2.3	13.5			
Little Beaver R. (39.5-0.2)	45.0	3.1	1.9			

* Dry Weight
** Back channel of Neville Island
- No Sample, Bottom Secured of Sediments

Total industrial water use of the Ohio and Monongahela Rivers in this area exceeds 6.3 billion gallons per day, of which approximately three-fourths is used for once-through cooling water for thermal electric power generation. Cooling water for three major iron and steel producers could account for an additional 15 percent of the total water use. Present projections show that thermal electric power capacity will double every 10 years on the national average. In this reach of the Ohio River in Pennsylvania, this duplication of capacity is expected to occur in the next five years.[18] This alarming increase of thermal power capacity poses a threat to water quality in the Ohio River. These waters cannot accept heated waste waters without quality degradation and sacrifices of beneficial uses.

Although current detailed temperature data for these reaches of the Ohio and Monongahela Rivers are limited to a few sources, they indicate that a problem exists now. The University of Pittsburgh study reported a 5.4° F rise in the annual mean temperature of the Ohio River at Ambridge in water year 1965 as compared to U. S. Geological Survey records for 1944-1951. The study also revealed that the Monongahela River at Belle Vernon had an average temperature of 78.0° F during August, 1965, and a maximum temperature of 82.4° F. During this same month, the Monongahela River station at Pittsburgh had an average temperature of 87.8° F and a maximum temperature of 91.4° F. EPA's Pollution Surveillance data also shows the Monongahela River at Pittsburgh reached a temperature of 91.4° F during the same month.

ORSANCO's continuous monitor at South Heights has detected a maximum temperature of 85.8° F in August, 1968; EPA's data shows a maximum of 86.0° F at this station during the same month. Another monitor at Stratton, Ohio showed the highest temperature recorded (87.9° F) in the entire Ohio River in 1968. The monitor is located 14 miles downstream from the Pennsylvania State line, and there are no major heat sources in this reach.

IRON

Iron is relatively insoluble in the presence of oxygen at the pH ranges common to these sections of the Ohio and Monongahela Rivers. Dissolved iron discharged into the river would tend to flocculate as ferric hydroxide. Eventually, the ferric hydroxide will settle to coat exposed surfaces and to form sludge deposits that destroy aquatic life. During high flows, scouring action will re-suspend much of the iron from the bottom.

In addition to ferric hydroxide, many steel plants and metal processing plants discharge insoluble iron oxides in their wastewaters. These oxides usually settle to form sludge deposits near the discharge point. Iron oxides, however, are also re-suspended by high river velocities and are subsequently deposited far from the original point of discharge.

For many years, it was thought that high iron concentrations in the upper Ohio River were the result of acid mine drainage in the Allegheny and Monongahela River basins. A study sponsored by ORSANCO on the upper Ohio River during and immediately after the extended steel shut-down in 1959 showed that "dissolved iron concentrations at most stations during the shut-down averaged 0.1 ppm (parts per million); after start-up of the mills, concentrations were two to seven times that value."[19] Therefore, iron in the upper Ohio River Basin is not solely due to acid mine drainage.

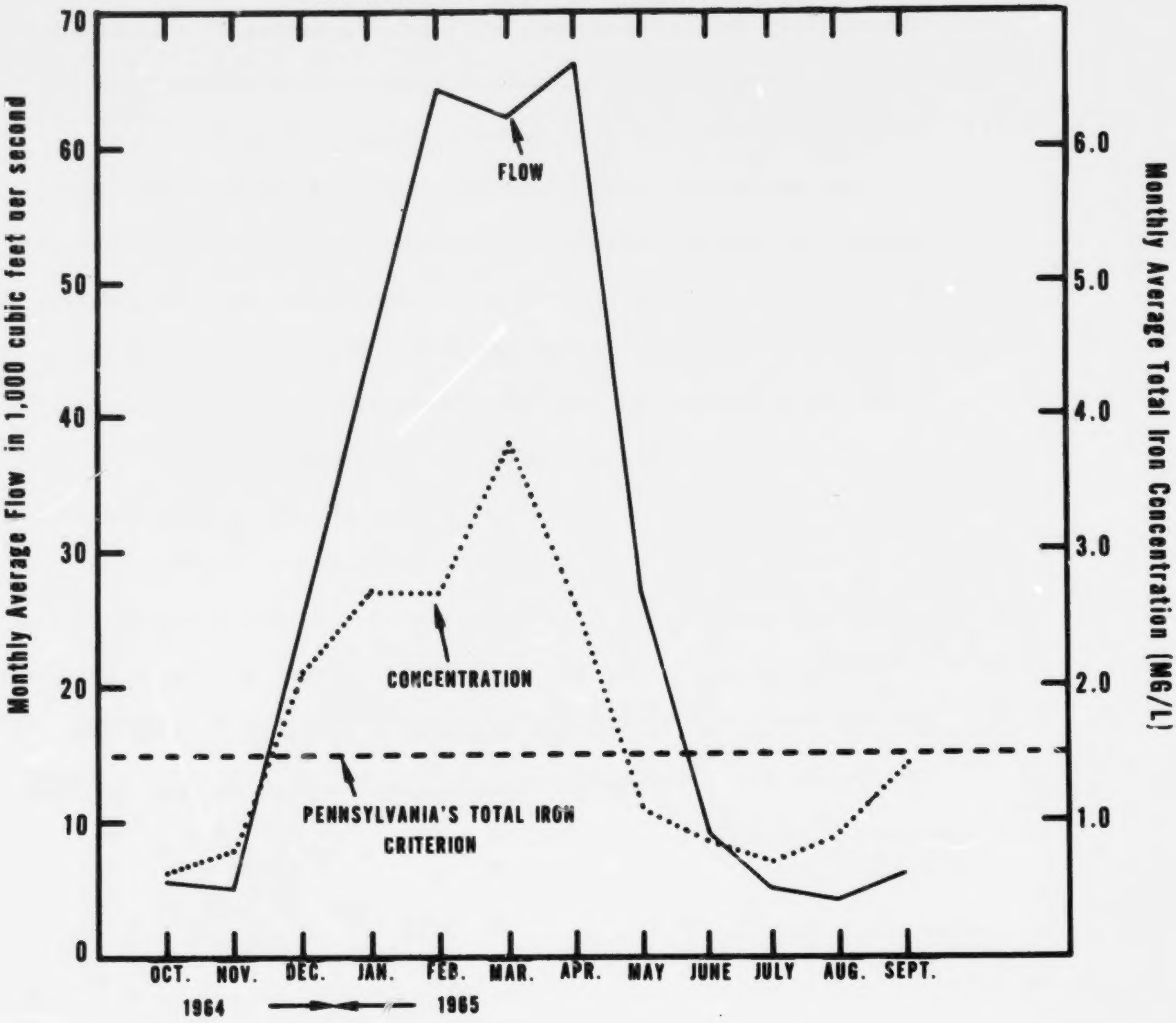
The Commonwealth of Pennsylvania has set a total iron criterion for the Ohio and Monongahela Rivers of 1.5 mg/l. Figure 5 is a plot of the average monthly total iron concentrations and river flows for the Ohio River at Rochester in the 1964-65 period. Pennsylvania's criterion was violated on the average for all months from December through April. The correlation between iron concentration and river flows is probably due to the re-suspension of deposited iron from the river bed.

EPA's Pollution Surveillance data on iron concentration showed the following since June, 1968:

		Total Iron Concentration (mg/l)		
River	River Mile	Minimum	Maximum	Average
Monongahela	0.8	0.1	2.6	1.1
Allegheny	0.5	0.1	2.7	1.0
Ohio	16.0	0.1	3.7	0.9
Ohio	40.0	0.2	5.8	1.3

Of particular importance is the fact that the maximum and average total iron concentrations actually increase rather than decrease as the river approaches the State line. This increase results from the addition of large amounts of iron to the Ohio River in this area.

FIGURE 5
OHIO RIVER AT ROCHESTER, PENNSYLVANIA



SLUDGE DEPOSITS

Sludge deposits on a stream bottom are indicative of either inadequately treated municipal or industrial wastes or a combination of both. Sludge deposits, apart from aesthetic considerations, restrict the development of a desirable fauna in a stream.

The biological study of the Ohio River in May and June, 1970 showed that bottom sediments in this area contained toxic concentrations of oil and concentrations of organic carbon and nitrogen typical of organic sludge originating from inadequately treated sewage waste water (Figure 6). The reported concentrations of organic carbon and nitrogen in the sediments and the absence of strong odors of decomposition indicated that these sludges were not undergoing active decomposition. Toxic concentrations of oil in the sediment inhibited the development of a benthic fauna conducive to the biological decomposition of nitrogenous wastes. Specific effects of sludge deposits are included in the discussion of BOTTOM SEDIMENTS AND ORGANISMS section of this report titled EFFECTS OF POLLUTION ON AQUATIC LIFE.

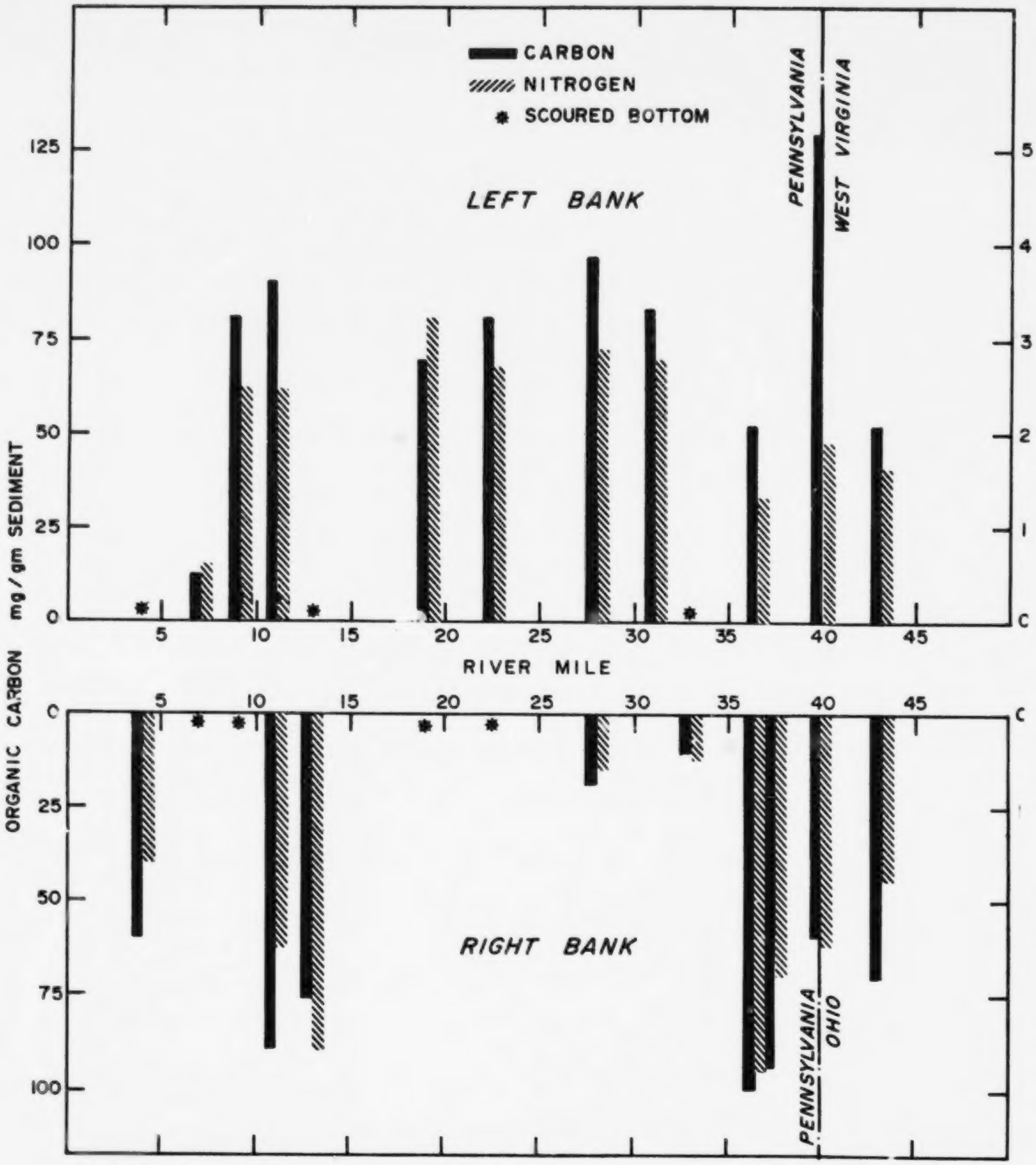


FIGURE 6 - ORGANIC CARBON AND NITROGEN CONTENT OF SEDIMENT SAMPLES FROM OHIO RIVER, PITTSBURGH, PA. DOWNSTREAM TO E. LIVERPOOL OHIO, MAY 1970.

EFFECTS OF POLLUTION ON AQUATIC LIFE

EPA conducted a biological survey of the Ohio River in Pennsylvania in May and June 1970 to identify the effects of pollutants on aquatic life. Six major areas of concern were investigated: algae, attached growths, nutrients, bottom organisms and substrate, fish life and fish flesh tainting. Analysis of each of these areas can reflect the impact of pollution on the aquatic environment. The suspended algae, or phytoplankton, are important because they are part of the basis of the food-chain that ends with fish; they add oxygen to the water through the process of photosynthesis; they remove oxygen from the water through the process of respiration; and if super-abundant, they may create nuisances and impart objectionable taste and odors to water supplies. The attached growths of microorganisms perform the same environmental roles as the suspended algae, but they "monitor" the continuing changes in quality of the overpassing water. Nutrients in water are important when they support super-abundant plant life, so it is necessary to study the availability of nutrients. The community of bottom organisms is part of the vital link between algae and fish in the food chain. The composition of these communities is an excellent indicator of water quality conditions. The composition of the substrate strongly affects these communities. The substrate is also the place where fishes deposit their delicate eggs to incubate. Fish are the top of the food pyramid in the aquatic ecosystem. The species, number and quality

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of fishes that inhabit a stream reflect the water quality of that body of water. Waste water effluents have been known to taint flavors of fish flesh. To identify such waste sources, fish with acceptable flavor were exposed upstream and downstream from suspected sources. Such a test procedure shows the direct influence of pollution.

SUSPENDED ALGAE

According to historical data, the upper Ohio River does not support algae populations typical of rivers with similar characteristics. Pollution sensitive algae occurred rarely; the populations were predominantly pollution-tolerant. Occasionally samples had no algae, indicating toxic conditions.

Samples collected in May 1970 contained very low numbers of algae, ranging from 162 to 643 cells per milliliter. The number of algal cells and the quantity of chlorophyll both increased downstream, indicating an increase in the viability and photosynthesis potential of the algae.

Water samples collected in May 1970 were bio-assayed to determine their potential for algal growth. Only five of 22 samples sustained algal growth for the duration of the 17-day test.[20] Eleven samples supported short term growth, but growth was stimulated and sustained by addition (at seventh day) of nitrogen and phosphorus. Six of the samples were toxic to the inoculated algae. Results of the assays are summarized in Figure 7. Waters from the Allegheny and Monongahela Rivers were toxic to the test algae. Toxicity to

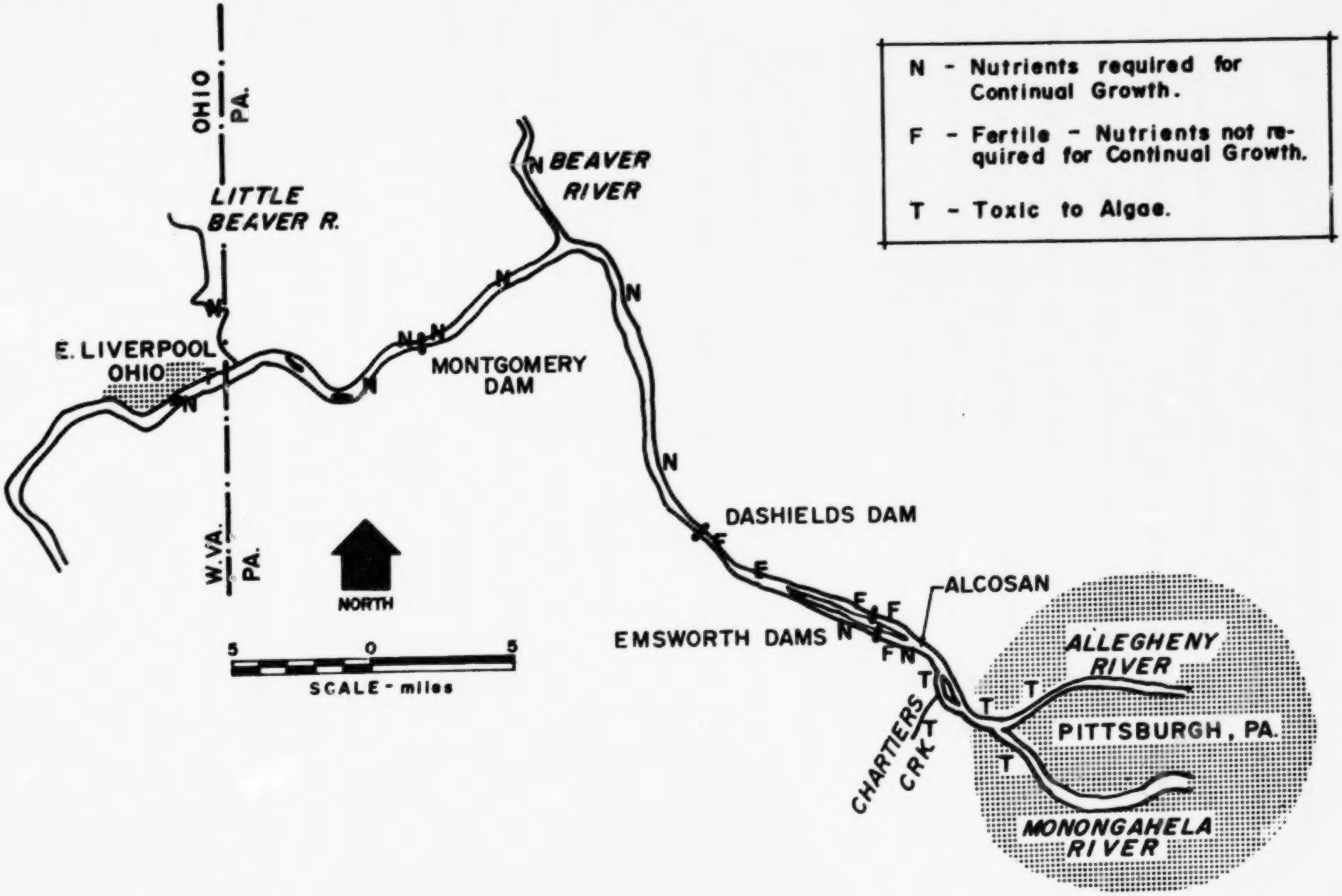
N - Nutrients required for Continual Growth.
F - Fertile - Nutrients not required for Continual Growth.
T - Toxic to Algae.
OHIO
PA.
LITTLE BEAVER R.
BEAVER RIVER
E. LIVERPOOL OHIO
MONTGOMERY DAM
DASHIELDS DAM
EMSWORTH DAMS
ALCOSAN
ALLEGHENY RIVER
PITTSBURGH, PA.
MONONGAHELA RIVER
CHARTIERS CRK
W.VA.
PA.
NORTH
5
0
5
SCALE - miles

FIGURE 7 - SUMMARY OF ALGAL RESPONSES IN BIO-ASSAYS, OHIO RIVER, JUNE, 1970

algae persisted in the Ohio River downstream of the confluence. Downstream from the Allegheny Sanitary Authority discharge, the waters were not toxic to the the test algae, and contained sufficient nutrients to stimulate the growth of algae for the 17-day test period. Downstream from Dashields Dam, the river waters were short of nutrients for algal growth with the exception of the water sample from the West Virginia-Pennsylvania State line which was toxic to the test algae. This sample contained large quantities of oil and emulsifiers which can be toxic to aquatic life.

ATTACHED GROWTHS

Attached growths collected during this study reflected conditions from mid-May to mid-June. These growths were predominantly the more pollution-tolerant blue-green algae at most of the sampling stations (Figure 8).

Downstream of the ALCOSAN waste effluent, there was a reduction in both the number of cells and number of kinds of attached growths. Protozoa, which thrive where there is an abundance of bacteria and microscopic sewage particles, made up a significant part of the population.

As the decomposing organic material released nutrients, the attached forms responded with an increase in numbers and chlorophyll content (Figures 9 and 10). Further downstream, the data are similar to those observed upstream of the organic source. This indicated that the effects of the organic discharge were no longer manifested

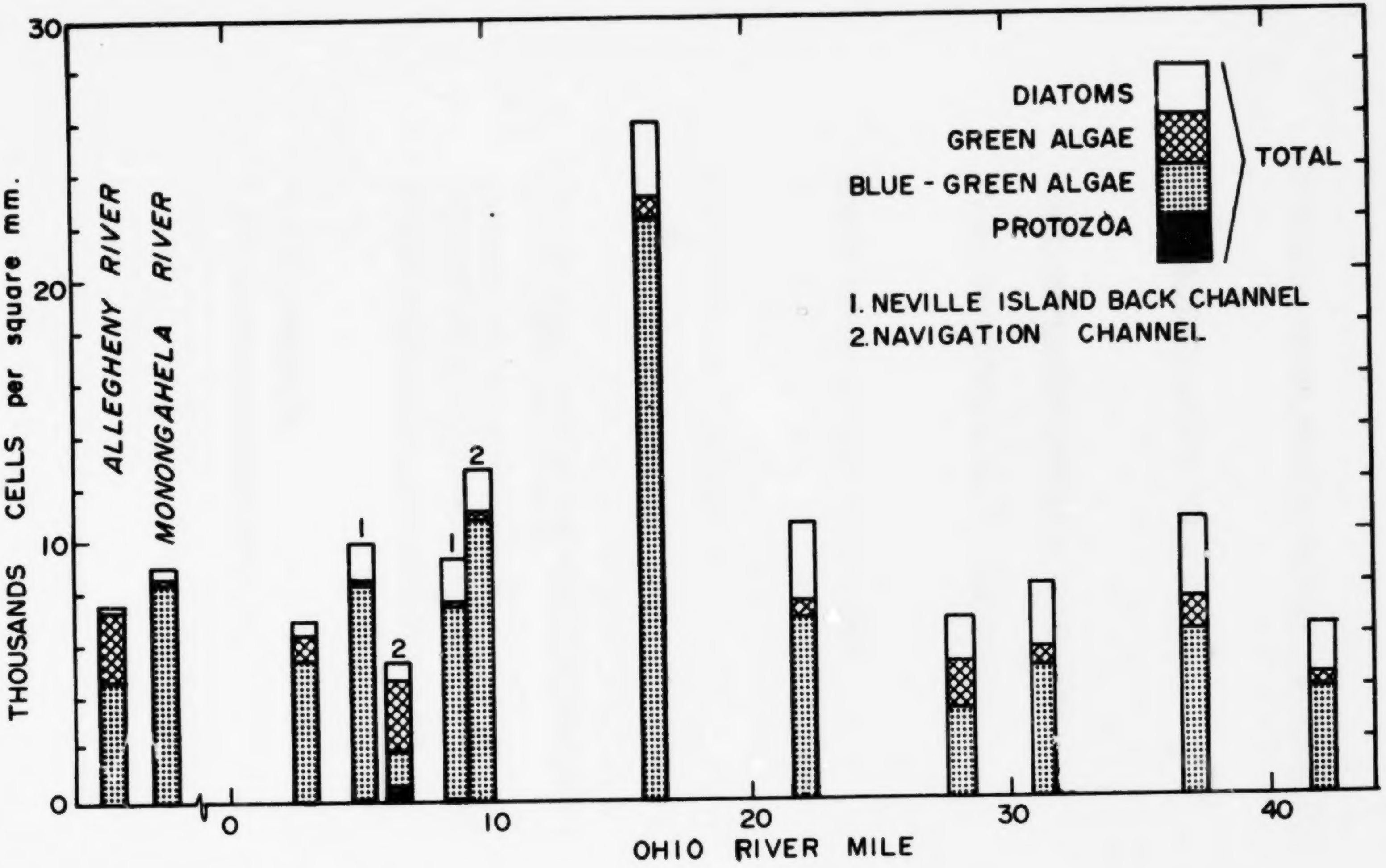

FIGURE 8 - NUMBERS AND COMPOSITION OF ATTACHED GROWTHS, OHIO RIVER. MAY-JUNE, 1970

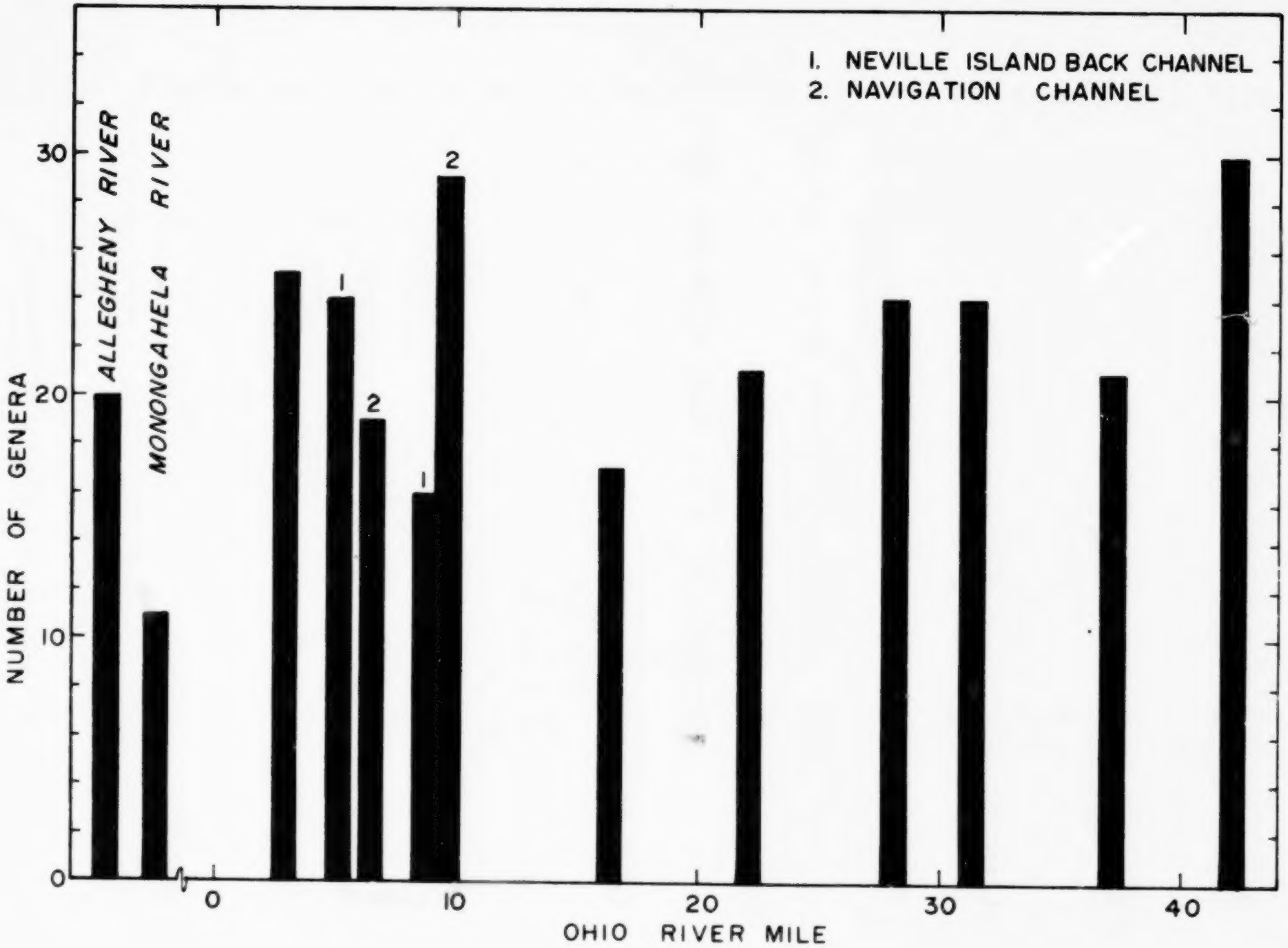

FIGURE 9 · NUMBER OF KINDS OF ORGANISMS IN ATTACHED GROWTH COMMUNITIES, OHIO RIVER, MAY-JUNE, 1970

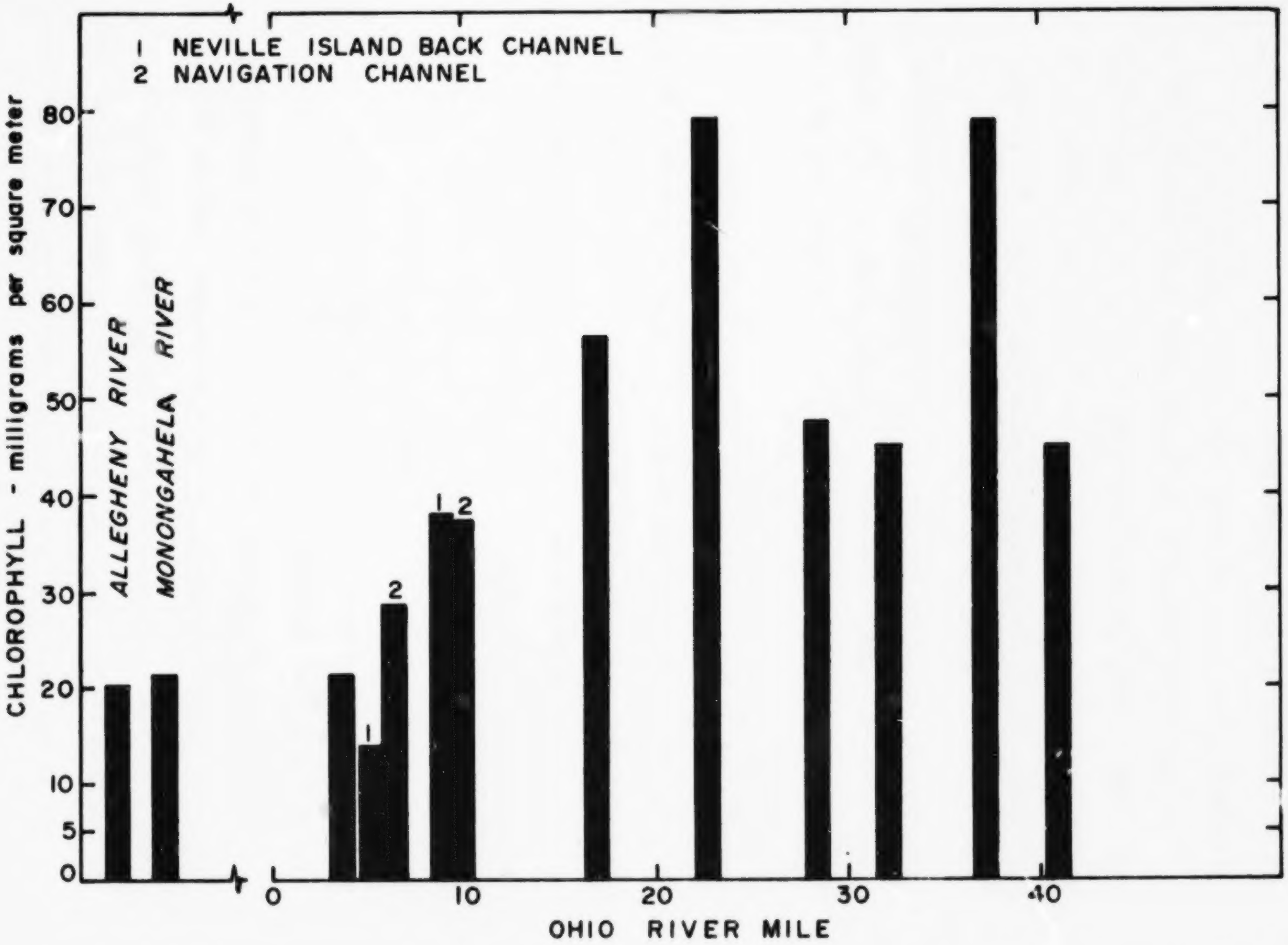

FIGURE 10 - QUANTITY OF CHLOROPHYLL IN ATTACHED GROWTH COMMUNITIES, OHIO RIVER, MAY-JUNE, 1970

or were masked by other discharges.

NUTRIENTS

According to historical data, excessive quantities of iron in and added to the upper Ohio River may be reducing the availability of phosphorus for algal growths. Iron tends to precipitate at the confluence of the Monongahela and Allegheny Rivers. The precipitating iron can either react with or absorb phosphate ions or phosphorus. The reactions are the cause for the shortage of nutrients observed in the algal bio-assays. Nitrogen would not be a limiting nutrient since there is usually an abundance of inorganic nitrogenous compounds.

BOTTOM SEDIMENTS AND ORGANISMS

Bottom sediments in the study area contained toxic concentrations of oil. Concentrations of organic carbon and nitrogen in the sludge were typical of organic sludge originating from inadequately treated sewage wastewater. Concentrations of organic carbon and nitrogen in bottom sediments increased from river mile 3.1 downstream to at least river mile 43.0 (Figure 6 on page 71).

The reported concentrations of organic carbon and nitrogen in the sediments and the absence of strong odors of decomposition indicate that these sludges were not undergoing active decomposition. Toxic concentrations of oil in the sediment inhibited the development of a benthic fauna conducive to the biological decomposition of nitrogenous wastes. Only pollution-tolerant sludgeworms were found living in the sediments, and their low numbers indicated conditions of toxicity. Figure 11 illustrates the locations of the benthic sampling points, and Table 14 lists the bottom fauna composition.

In addition to the direct quantitative bottom sampling, artificial rock substrates[21] were installed for a four-week period in May and June. These artificial substrates were suspended off the bottom and provided a habitat for colonization by bottom animals that was not affected by variations in sediment or bottom materials. Figure 12 and Table 15 summarize the populations of animals found inhabiting these baskets. With the exception of sludgworms, the samples generally contained few organisms. Pollution-sensitive animals were only rarely found. The low number of kinds and the low populations at most sampling points suggest the presence of toxic materials. Though ALCOSAN discharges organic materials at mile point 3.2, animals that would increase their population because of the increased food supply were found in low numbers indicating the presence of toxic materials. At three points, the baskets contained large numbers of organisms (Figure 12); these were primarily worms. Each of these areas are below significant sources of iron-bearing waste waters. Precipitation of iron on the rocks or the growth of filamentous iron bacteria would provide soft materials on the rocks and in the crevices. These soft materials provided a more suitable substrate than rocks for the burrowing pollution-tolerant worms.

FISH POPULATIONS

The number of kinds of fish inhabiting waters are an indication

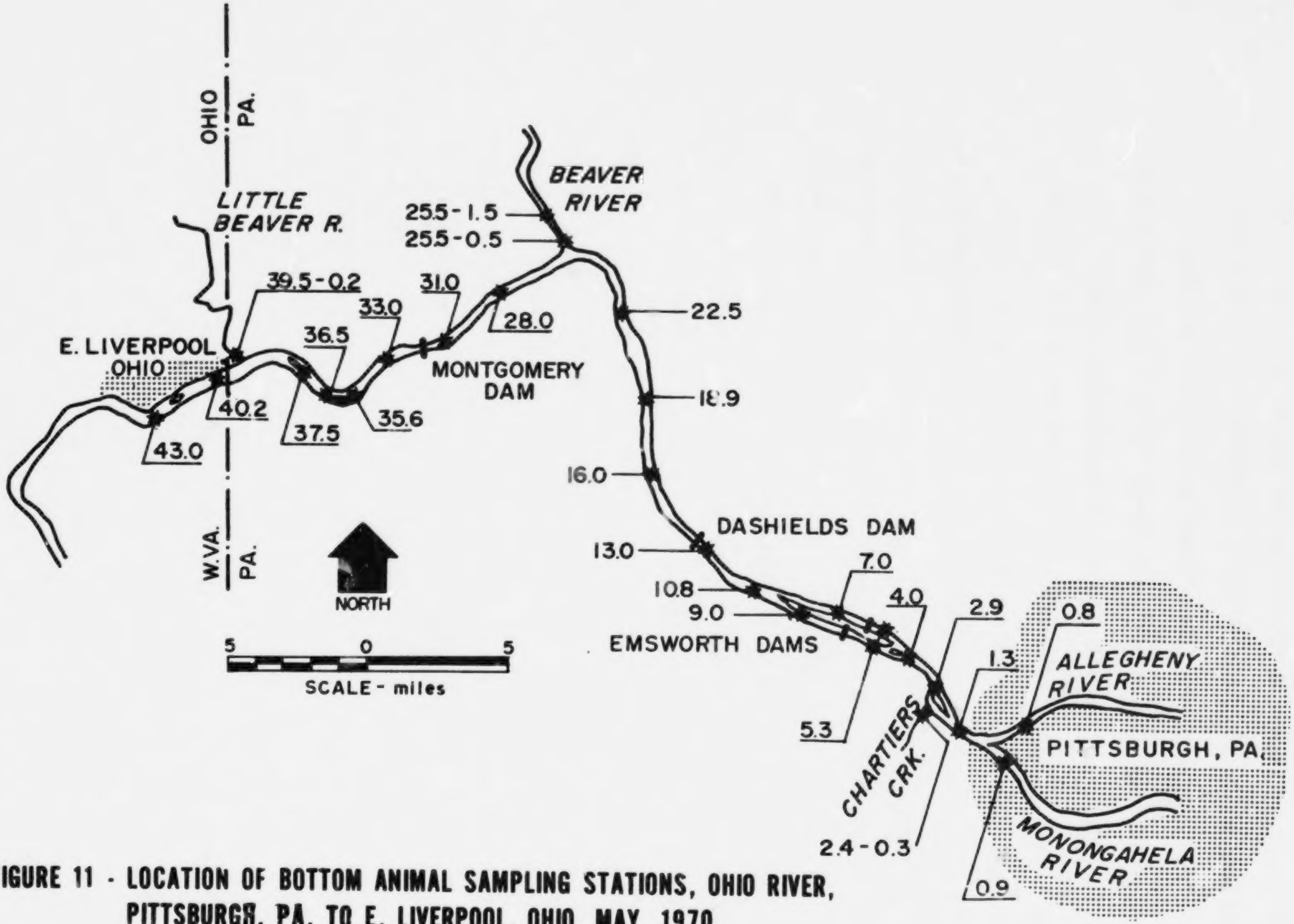
OHIO
PA.
LITTLE
BEAVER R.
E. LIVERPOOL
OHIO
39.5-0.2
40.2
43.0
37.5
36.5
35.6
33.0
31.0
MONTGOMERY
DAM
28.0
25.5-1.5
25.5-0.5
BEAVER
RIVER
22.5
18.9
16.0
DASHIELDS DAM
13.0
10.8
9.0
EMSWORTH DAMS
7.0
4.0
5.3
2.9
1.3
0.8
ALLEGHENY
RIVER
PITTSBURGH, PA.
CHARTIERS
CRK.
2.4-0.3
MONONGAHELA
RIVER
0.9
W.VA.
PA.
NORTH
5
0
5
SCALE - miles

FIGURE 11 - LOCATION OF BOTTOM ANIMAL SAMPLING STATIONS, OHIO RIVER, PITTSBURGH, PA. TO E. LIVERPOOL, OHIO, MAY, 1970

TABLE 14

Bottom organisms collected from Ohio River
from Pittsburgh, Pennsylvania, downstream to
East Liverpool, Ohio, May 1970

Stations (River Miles)

Kinds of Organisms	1.3		2.9		4.0		5.3**		5.3		7.0		9.0**	10.8		13.0	16.0		18.9	22.5		28.0		31.0	
	L	R	L*	R*	L	R*	L	R	R	L	R	L	R	L	R	R	L*	R*	L	L	R*	L	R	L	R
Midges Spaniotoma	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scuds Gammarus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Crane Flies Tipulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phantom Midges Chaoborus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leeches Hirunidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sludgeworms Tubificidae	2	14	-	-	5	-	-	10	-	-	18	-	18	-	-	5	-	-	-	-	-	48	5	2	-
Subtotal/ cu. ft.	2	14	0	0	5	0	0	10	0	0	18	0	18	0	0	5	0	0	0	0	0	48	5	2	0
Subtotal/ Kinds	1	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	1	1	1	0

* River bottom scoured.

** Back channel

TABLE 14 (cont.)

Kinds of Organisms	33.0		35.6	36.5	37.5	40.2		43.3		Chartiers Creek 2.4-0.3	Beaver River		Little Beaver River 39.5-0.2	Allegheny River 0.8		Monongahela River 0.9	
	L*	R	L	R	R	L	R	L	R		25.5-0.5	25.5-1.5		L*	R	L	R
Midges Spaniotoma	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
Scuds Gammarus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-
Crane Flies Tipulidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phantom Midges Chaoborus	-	-	-	-	-	-	-	-	-	4	-	2	-	-	-	-	-
Leeches Hirunidae	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Sludgeworms Tubificidae	-	73	27	9	-	-	15	20	7	8	-	12	3	-	165	2	26
Subtotal/ oz. ft.	0	73	27	9	0	0	15	20	7	16	0	14	3	-	177	2	26
Subtotal/ Kinds	0	1	1	1	0	0	1	1	1	3	0	2	1	0	3	1	1

* River bottom scoured.

** Back channel

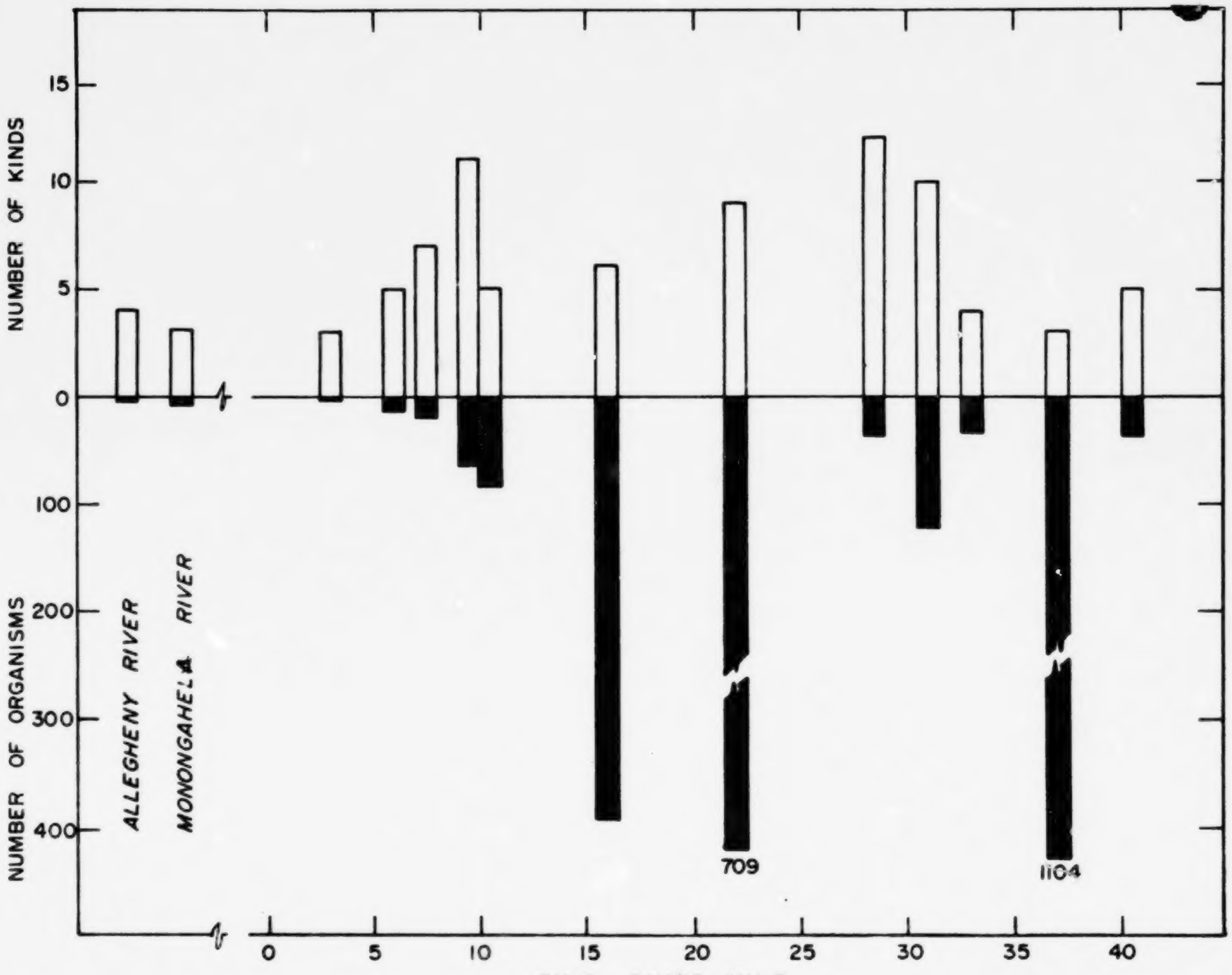

FIGURE 12 - BOTTOM ANIMALS COLLECTED IN ROCK BASKET SAMPLERS, UPPER OHIO RIVER, MAY-JUNE, 1970.

Table 13. Summary of Bottom Animals Collected from Basket Samplers--Upper Ohio River

May-June, 1970

No./Basket

River Mile -	A*-6.7	M*-11.2	0 3.1	5.3	6.2	9.1	9.1	16.7	22.3	28.0	31.7	34.7	37.0	40.2
ORGANISM:														
Diptera (True Flies)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chironomidae (Midges) pupae	-	-	-	-	-	5	-	2	6	1	6	1	16	-
Chironomidae larvae	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ablabesmyia mallochi	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Conchapelopia	-	-	-	1	-	-	-	-	2	-	1	-	-	-
Psectrocladius sp. 3 Rob.	-	-	-	1	-	1	1	4	6	5	-	7	-	8
P. sp. 4 Rob.	-	-	-	-	-	-	-	-	-	-	5	-	-	-
P. flavus gr.	-	-	-	-	-	-	-	-	2	-	1	-	-	-
Cricotopus bicinctus gr.	1	-	-	-	-	-	-	26	8	2	23	7	88	8
C. junus	-	1	-	-	-	3	-	6	-	2	-	-	-	-
C. trifasciatus gr.	1	-	-	-	1	12	3	-	12	6	2	-	-	-
Diplocladius sp. ?	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Polypedilum sp.	-	-	-	-	-	-	-	-	-	-	1	-	-	-
P. scelaenum	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Parachironomus abortivus ?	-	-	-	-	-	2	-	-	-	-	-	-	-	-
P. pectinatellae	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Dicrotendipes nervosus	-	-	-	-	-	1	-	-	-	-	-	-	-	-
D. neomodestus	-	-	-	-	-	-	-	1	-	-	-	-	-	-
D. incurvus gr.	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Ephemeroptera (Mayflies)														
Stenonema integrum	-	-	-	-	3	-	-	-	-	-	-	-	-	-
Plecoptera (Stoneflies)														
Perlesta placida	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Odonata														
Zygoptera (Damselflies)														
Enallagma exsulans	-	2	1	1	3	1	2		1	6	-	-	-	-
Crustacea														
Isopoda (Sowbugs)														
Asellus sp.	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Amphipoda (Scuds)														
Crangonyx sp.	-	-	-	-	-	-	-	-	-	1	-	-	-	-
Decapoda (Crayfish)														
Orconectes sanborni	2	-	1	-	1	-	-	-	-	2	-	1	-	-
Oligochaeta (Segmented Worms)														
Naididae	-	5	1	10	11	35	75	354	670	10	81	16	1000	21
Nematoda (Roundworms)	-	-	-	3	-	1	-	-	-	-	2	-	-	-
Mollusca														
Gastropoda (Snails)														
Physa sp.	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Bryozoa (Moss Animals)														
Fredericella sp.	-	-	-	-	X	-	-	-	-	X	X	-	-	X
Plumatella sp.	-	-	-	-	-	-	-	-	-	X	X	-	-	X
Coelenterata (Hydras)														
Hydra sp.	-	-	-	-	-	-	-	-	X	-	-	-	X	-
Hydracarina (Water Mites)	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Individuals	5	8	3	16	20	64	82	394	709	37	122	32	1104	37
Total Taxa	4	3	3	5	7	11	5	6	9	12	10	4	3	5

*A - Allegheny River; M = Monongahela River.

X = present

of the water quality. Since 1957, a number of fish studies have been conducted in this reach of the Ohio River.[12,22,23] These have involved sampling the populations in the lock chambers at the Emsworth, Dashield, and Montgomery Dams.

A July 1959 study at Montgomery Locks and Dam produced 21 fish species, which is the greatest number collected in the lock chamber samples in this section of the river. This study was conducted following closure of the steel industries by strike. Krumholz and Minckley[23] compared the 1959 studies (before and after the strike) and concluded that after the industry shutdown, there was an improvement in water quality accompanied by an increase in the variety and abundance of fishes. Further, they showed the principal difference in species composition was the occurrence of pollution sensitive fishes that invaded the previously polluted area, presumably from nearby unpolluted waters. Six of these species, collected in the study after the industry closure, were not collected previously in the lock chambers, nor have they been collected since.

There was a marked increase in the total weights and total number of individuals in the sample results during the 1967-69 study over the 1957-59 study. Fish production was greater in this section of the Ohio River in the late sixties than in the late fifties.

The species composition of the 1967-69 studies is dominated by carp and bullheads. This condition indicates that the water quality favors the more pollution-tolerant fish. A few pollution-sensitive fishes, notably the longperch darter and the walleye, were collected in the 1967-69 study. The important sport and commercial fishes such as channel catfish, the sunfishes and walleyes have never comprised over 10 percent of the fish population.

FISH TAINTING

Channel catfish of acceptable flavor were placed in the Allegheny, Monongahela and Ohio Rivers at various points. After three days exposure, the fish were retrieved and subjected to a panel taste test. The panel scored the flavor of each sample on a 7-point scale ranging from 7, no unnatural flavor, to 1, very extreme, unacceptable flavor. Fish flesh having scores of 5 to 7 were considered to have acceptable flavors.

The flavors of catfish exposed one mile upstream from the Ohio River confluence in the Allegheny and Monongahela Rivers were unacceptable. Excepting at two exposure points (river mile 4.9 and 14.5), all catfish exposed along the left bank of the Ohio River in the study reach acquired unacceptable flavors. Along the left bank of the Ohio River, particularly bad unacceptable flavors were acquired by exposed catfish at the following points: (1) downstream from the waste outfall of Shenango, Inc., at river mile 5.8 (score 3.8); (2) dowstream from waste outfalls of the Jones and Laughlin Steel Company at river miles 17.9 (score 3.2), 19.3 (toxic), and 22.2 to 24.2 (scores 3.8 to 3.9); (3) downstream from waste outfalls of the Pittsburgh Tube Company and Monaca sewage treatment plant at mile 28.4 (score 3.2); and (4) downstream from waste outfalls of the Sinclair-Koppers Company at river miles 29.8 (score 3.6) and 30.0 (score 3.0).

All test fish exposed along the right bank of the Ohio River in the study reach acquired flavors that were not acceptable. Along the right bank of the Ohio River, particularly bad unacceptable flavors were acquired by exposed catfish at the following points: (1) downstream from the point of discharge from the Allegheny County Sanitary Authority sewage treatment plant at river mile 3.2 (score 3.6); (2) downstream from the mouth of tributary Legionville Run at river mile 18.8 (score 3.9); (3) downstream from waste outfalls of the Penn-Central Railroad Company at river mile 21.4 (score 3.8); (4) downstream from the waste discharge of the Borough sewage treatment plant at river mile 28.2 (score 3.7); (5) downstream from waste discharges from the Midland sewage treatment plant and Crucible Steel Company at river miles 36.6 (score 2.8) and 39.3 (score 3.8). Ohio River waters at the State boundary lines (river mile 40.0) imparted unacceptable flavors to exposed catfish.

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PROCEEDINGS

OPENING STATEMENT
BY
MURRAY STEIN

MR. STEIN: The conference is open.

This conference in the matter of pollution of the interstate waters of the Ohio River and its tributaries in the Pittsburgh, Pennsylvania, area, involving Pennsylvania, Ohio and West Virginia, is being held under the provisions of section 10 of the Federal Water Pollution Control Act, as amended. Under the provisions of the Act, the Administrator of the Environmental Protection Agency is authorized to initiate a conference of this type when on the basis of reports, surveys, or studies he has reason to believe that pollution subject to abatement under the Federal Act is occurring.

As specified in section 10 of the Act, the official State and interstate water pollution control agencies have been notified of this conference by Administrator Ruckelshaus. These agencies are the Pennsylvania Department of Environmental Resources, the West Virginia Department of

Natural Resources, the Ohio Water Pollution Control Board, and the Ohio River Valley Water Sanitation Commission.

Both the State and Federal Governments have responsibilities in dealing with water pollution control problems. The Federal Water Pollution Control Act declares that the States have primary rights and responsibilities for taking action to abate and control pollution. Consistent with this, we are charged by law to encourage the States in these activities.

At the same time, the Administrator of the Environmental Protection Agency is charged by law with specific responsibilities in the field of water pollution control in connection with pollution of interstate and navigable waters. The Federal Water Pollution Control Act provides that pollution of interstate or navigable waters, which endangers the health or welfare of any persons, shall be subject to abatement. This applies whether the matter causing or contributing to the pollution is discharged directly into such waters or reaches such waters after discharge into a tributary.

The purpose of this conference is to bring together the State and interstate water pollution control agencies, representatives of the United States Environmental Protection Agency, and other interested parties to review the existing situation and the progress which has been made, to lay a basis for future action by all parties concerned, and to give the States, localities, and industries an opportunity to take any indicated remedial action under State and local law.

I think we will have the conferees introduce themselves at this time. May we start at the left of the table.

MR. FROST: I am Jack Frost, Ohio Department of Natural Resources.

MR. RICHARDS: I am Earl Richards, Acting Chief, Division of Engineering, Ohio Department of Health.

MR. RILEY: I am William Riley, Environmental Protection Agency, Region III.

MR. HALL: John Hall, Assistant Chief, Division of Water Resources, State of West Virginia.

MR. LYON: Walter Lyon, Director of the Bureau of Sanitary Engineering, Department of Environmental Resources, Pennsylvania.

MR. EICHBAUM: Bill Eichbaum, Deputy Secretary for Enforcement, Department of Environmental Resources, Pennsylvania.

MR. HORTON: I am Robert Horton, Executive Director of the Ohio River Valley Sanitation Commission.

MR. STEIN: Thank you.

Opening Statement - Murray Stein

My name is Murray Stein, and I am the Chief Enforcement Officer for Water, Environmental Protection Agency, in Washington, D.C., and the representative of Administrator Ruckelshaus.

The parties to this conference are the official State and interstate water pollution control agencies and the Environmental Protection Agency. Participation in this conference will be open to representatives and invitees of these agencies and such persons as inform me that they wish to present statements. However, only the representatives of the official agencies constitute the conferees.

Now a word about the procedures governing the conduct of the conference. The conferees will be called upon to make statements. The conferees, in addition, may call upon participants whom they have invited to the conference to make statements, and if necessary and requested to do so, we shall call on other interested individuals who wish to present statements.

At the conclusion of each statement, the conferees will be given an opportunity to comment or ask questions, and I may ask a question or two. This procedure has proven effective in the past in reaching equitable solutions.

Although we cannot entertain questions or comments from the floor, you can be assured that everyone will have an opportunity to be heard fully. Please save your comments and questions and you will be given an opportunity to make these points when your turn comes to speak.

At the end of all of the statements, we shall have a discussion among the conferees and try to arrive at a basis of agreement on the facts of the situation. Then we shall attempt to summarize the conference orally, giving the conferees, of course, the right to amend or modify the summary.

Under the Federal law, the Administrator of the Environmental Protection Agency is required at the conclusion of the conference to prepare a summary of it which will be sent to the conferees. The summary, according to law, must include the following points:

1. Occurrence of pollution of interstate waters subject to abatement under the Federal Act;

2. Adequacy of measures taken toward abatement of pollution; and

3. Nature of delays, if any, being encountered in abating the pollution.

The Administrator is also required to make recommendations for remedial action if such recommendations are indicated.

A record and verbatim transcript of the conference is being made by Mrs. Marilyn Hall. This is being made for the purpose of aiding us in preparing a summary and also for providing a complete record of what is said here. It usually takes about 3 or 4 months for the transcript to come out in printed form. If you wish the record beforehand -- or part of it -- you can check with Mrs. Hall, who is an independent contractor, and make your own arrangements.

I would like to indicate that we do not print in color, so take that into account in any charts or visual aids you present. These will be reproduced in black and white. Try not to refer to color if you use graphic aids in your presentation as they will be meaningless in the reading of the transcript.

We shall make copies of the summary and transcript available to the official State and interstate water pollution control agencies. We have generally found that for the purpose of maintaining relationships within the States, the people who wish summaries and transcripts should request them through their State agency rather than come directly to the Federal Government. The reason for this is that, when the conference has been concluded, we would prefer people who are interested in the problem to follow the normal relations in dealing with the State agencies rather than the Federal Government.

I would suggest that all speakers and participants other than the conferees making statements come to the lectern and identify themselves for the purposes of the record.

The agenda for the conference will include the Federal statements first, then statements of the States and their invitees, statements of ORSANCO, then a discussion, considerations by the conferees of the material presented, conclusions and recommendations, and a closing statement.

We will try to keep you advised as time goes on as to when any of you who may wish to speak can. If any of you have a special problem, be sure and get in touch with your State conferee to see if that can be resolved.

Before we would begin, I would like to take the opportunity of introducing Mr. Fred Morr of the Ohio River Basin Commission, which is vitally interested in the problem.

Mr. Morr, thank you for being with us.

At this point, I would like to call on the Federal conferee, Mr. Riley.

MR. RILEY: I would like to call on Mr. William West from our Wheeling Field Office to present the Federal report.

STATEMENT OF WILLIAM WEST,
CHEMICAL ENGINEER, FIELD OFFICE, EPA,
WHEELING, WEST VIRGINIA

MR. WEST: Mr. Chairman, conferees, ladies and gentlemen.

First of all, Mr. Chairman, I ask that this report, "Interstate Pollution of Ohio River, Pittsburgh, Pennsylvania Area," be entered into the conference record.

MR. STEIN: Without objection, that will be entered into the record as if read.

MR. LYON: Mr. Chairman, we will have some comments on the content of the Federal report, and will request that some changes be made.

MR. STEIN: Yes, but you have no objection to the Federal report being put in the record as they made it.

MR. LYON: No objection to that as long as the record is kept open for appropriate corrections.

MR. STEIN: That is the purpose of the conference, Mr. Lyon.

MR. LYON: Okay. Fine.

(The document above referred to follows in its entirety.)

MR. STEIN: Go ahead.

MR. WEST: Before I move into the report, copies of which have been furnished to each of you, I believe it would be helpful to indicate briefly the reasoning for calling this conference at this particular time.

The primary responsibility for the abatement or control of pollution of the waters within a State, belongs to the State, of course. The Federal Government intervenes only when the pollution of interstate or navigable waters in or adjacent to any State or States endangers the health or welfare of any persons. In this particular instance, it is the conclusion of the Environmental Protection Agency that the waters of the Monongahela and Ohio Rivers are polluted in Pennsylvania, and that this pollution is causing degradation of interstate waters involving the States of Ohio and West Virginia.

Pennsylvania has adopted water quality criteria which, in general, are acceptable and have been federally approved. It is my understanding that in June 1967, the Sanitary Water Board adopted an implementation plan, approved by the Federal Government, requiring all municipalities and industries to install secondary treatment facilities or its equivalent by July 1, 1972. The Sanitary Water Board directed that these orders be issued by June 30, 1968. Unfortunately, it appears to us that these orders requiring municipalities and industries to comply were not issued, in a large part, until June 1970. Thus two years have been apparently lost, and the July 1, 1972 completion date is, to an undetermined extent, no longer realistic. The purpose this conference has is to fix criteria and schedules which will be both reasonable and enforceable.

Now, I shall proceed to the basic points which are brought out in the report which is in your hands. For those who care to follow my statements, I shall indicate the page from which I am reading and shall also indicate when I am departing the written text. Going first, then to page 15:

Municipal Water Supply

The Monongahela River is used widely as a source of municipal water. About 623,000 people in this area are served by municipal water systems that use the Monongahela River as a raw water source. The South Pittsburgh Water Company alone serves about 480,000 people. Other major municipal users are the Charleroi, Elizabeth and North Versailles systems that serve 60,000; 37,600; and 16,000 people, respectively.

The Ohio River in Pennsylvania is not used extensively as a raw source for municipal water. In Pennsylvania, only the city of Midland uses the river as a raw water supply for approximately 7,000 people. Midland's raw water intake is located approximately 4 miles upstream from the Pennsylvania state line. East Liverpocl, Ohio is the only other municipality in this area to use the river as a raw water source; this system serves about 30,000 people. The extensive treatment used by the East Liverpool plant is indicative of the problems encountered when using the Ohio River as a raw water source. Chlorine dioxide is used for disinfection because of its characteristic of effectively destroying phenolic substances that cause taste and odor problems in finished water. High concentrations of phenols and other taste and odor causing materials necessitate the use of carbon filters to remove the foulness from the water. In the winter months, even this extensive treatment proves ineffective when phenol concentrations are high in the river. All other municipal systems in this area rely upon ground water from infiltration galleries, Ranney wells, or drilled wells for raw water sources.

The report also points out in the subsequent pages, the adverse effects of the pollution upon fishing and recreation. With respect to the use of the rivers for industry, I read as follows on page 18:

Industrial Water Supply

The Ohio and Monongahela Rivers are used extensively by industries in this area as a source of process and cooling water. Total water use exceeds 6.2 billion gallons per day, of which approximately three-fourths is used as once-through cooling water for thermal electric power generation. Major iron and steel producers account for approximately 20 percent of the industrial water use, the bulk of which is also used for cooling purposes. It has been estimated that cooling water comprises approximately 80 percent of the total water use in basic steel production, but reuse may alter the percentage considerably. The balance of the industrial water is used by metal processing plants, chemical plants, petroleum processing plants, and various other operations.

Now let me turn to the question of criteria, and I am going to page 21:

General Water Quality Criteria

Each State's Water Quality Standards include general criteria designed to protect the water uses of streams. The following are the general criteria adopted by the respective States and the U.S. Environmental Protection Agency:

Pennsylvania

The water shall not contain substances attributable to municipal, industrial or other waste discharges in concentrations or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. Specific substances to be controlled include, but are not limited to, floating debris, oil, scum, and other floating materials, toxic substances; substances that produce color, tastes, odors or settle to form sludge deposits.

You will also note that the criteria of West Virginia and Ohio are set forth in detail, and, in general, are similar to the standards of the State of Pennsylvania.

This brings me to the real substance of this report, which of course, relates to the type and source of the pollutants being discharged into the rivers covered by the conference. I now turn to page 29:

Sources of Wastes

Waste discharges from municipal and industrial sources have deleterious effects upon receiving waters in the conference area. Municipal wastes contain oxygen-demanding materials that can reduce dissolved oxygen in a stream; severe reduction of dissolved oxygen can limit or destroy fish, fish food organisms and other aquatic life. Municipal wastes also contain high numbers of intestinal bacteria from man's excretions, including pathogenic organisms. Objectionable surface scums, sludge deposits and turbidity in a stream may result from municipal waste discharges that contain greasy substances, settleable solids and suspended solids.

Industrial wastes may also contain oxygen-demanding materials, settleable and suspended solids, and greasy substances and oils. In addition, some industrial wastes contain objectionable chemicals and toxic substances that can taint fish flesh, kill aquatic life and damage a water source for use as a municipal supply. Industries use water extensively for cooling purposes. Heated water reduces the dissolved oxygen saturation concentration of a water body and increases the biochemical oxidation of organic wastes, further reducing the dissolved oxygen content.

The report also sets forth, as those of you who have copies will note, tables which indicate the nature of the discharges of the named municipalities and industries. As will be noted, there are 16 municipalities on the Ohio River between Pittsburgh and East Liverpool, all of which are comparatively small, except for the Allegheny County Sanitation Authority. Of these plants, the Allegheny County Sanitation Authority has primary treatment plus chlorine. The others (except for two small towns, which have secondary treatment) have only primary treatment. The Allegheny County Sanitation Authority, commonly known as ALCOSAN, contributes 84 percent of the bacterial load to the Ohio River, which is equivalent to a raw sewage discharge from 52,000 people.

The situation with respect to the Ohio River, pertains to the Monongahela River as well. Monongahela River communities, with the exception of McKeesport, are small and have secondary treatment facilities. Two communities, Monesson and Allenport, have no treatment facilities. Monesson and Allenport discharge untreated sewage from a total of 25,400 people, into the Monongahela River.

The tables list 22 major industrial dischargers to the Ohio River in Pennsylvania, consisting mainly of chemical, steel and powerplants. Noteworthy among these facilities are the plants of J&L at Aliquippa, Shenango, Inc. on Neville Island, and Crucible Steel at Midland, Pennsylvania. These plants discharge large quantities of phenols, suspended solids, oil, iron, zinc, and oxygen-demanding material. In addition, there are 22 other dischargers listed in Table 7, page 37, about which very little is known, despite our review of the records of the State of Pennsylvania.

In the Monongahela River portion of the conference area, there are seven major dischargers, five of which are United States Steel Corporation plants. These companies are discharging large quantities of phenols, cyanides, suspended solids, oil, and iron into the river. In addition, there are 19 other industrial dischargers about which very little is known, despite the review of the records of the State of Pennsylvania.

With respect to the discharges in the Monongahela River, EPA conducted an effluent sampling along the lower Monongahela River in early 1971. According to Table 6, which reflects data from that sampling program, phenols were discharged into the river at a rate of 2,500 lb/day during this period. Now, I am turning to page 44:

Oil Sources

The Commonwealth's files contained information of oil loads from only the Crucible Steel Company at Midland, which discharged about 10,000 pounds per day of oil in a water-oil emulsion. EPA biologists, during the study in May-June 1970, reported that "masses of dense globs of oils were observed floating downstream from a series of wastewater outfalls belonging to the Jones and Laughlin Steel Company at river mile 16.9. Severe oil pollution was apparent downstream from the Crucible Steel Company's wastewater outfalls at river mile 36.3."

EPA's industrial effluent sampling program in early 1971 revealed that oil was evident in several industrial discharges to the Monongahela River. U.S. Steel's Irvin Works had a discharge that contained about 3,500 pounds per day of oil.

Heat Sources

The largest unnatural sources of heat to these two rivers in this area were six thermal electric power-plants.

The two plants along the Monongahela River, the Elrama and Mitchell Plants, would theoretically raise the temperature of the river 41.9° F. during a low flow of 500 cfs. The remaining plants in the above table would theoretically raise the Ohio River 5.4° F. during a low flow of 3,300 cfs. Other heat sources were major iron and steel plants which use about 80 percent of their total water usage for cooling.

I now go to page 47:

Cyanides

The limited data available indicate that the Ohio River receives about 925 pounds per day of cyanides. Information on cyanide discharges were available for only Shenango, Inc., on Neville Island and Jones and Laughlin at Aliquippa; these loadings were 480 and 445 pounds per day, respectively. The effluent sampling program performed by EPA in early 1971 showed that about 1,000 pounds per day of cyanide were being discharged by industries into the Monongahela River.

Now let me make a short statement concerning the effects of pollution. I am on page 51:

Bacterial Pollution

Municipal sewage contains enormous numbers of bacteria, among which there are frequently pathogenic bacteria, derived from human excreta. These pathogenic bacteria can cause gastro-intestinal diseases such as typhoid fever, dysentery and diarrhea. Infectious hepatitis, a virus disease, can also be caused by ingesting sewage-polluted water. Eye, ear, nose, throat or skin infections may result from bodily contact with such water. As the densities of pathogenic bacteria are reduced by sewage treatment or forces of natural purification, the hazards of contacting disease are proportionately reduced.

Sewage also contains readily detectable coliform bacteria, which typically occur in excreta or feces and are always present in sewage-polluted water. Though generally harmless in themselves, coliform bacteria have been considered indicators of the presence of pathogenic bacteria. The coliform group includes several types of bacteria which may come from sources other than excreta.

I will now read portions of pages 55, 57, 59, 61 and 63:

W. West

Coliform Bacteria

In the study of the Ohio River in May and June 1970, total coliform densities of the Ohio River in Pennsylvania exceeded the 5,000 per 100 ml bacterial criterion for water supply in 43 of 44 samples (97.7 percent). In the recreational period, the river's total coliform density exceeded 1,000 per 100 ml in 179 of 180 samples (99.4 percent). The river at one station (river mile 6.7), had an average total coliform density of over 600,000 per 100 ml or 600 times the approved bacterial criterion for recreation in Pennsylvania.

The bacterial pollution of the Ohio River in Pennsylvania persisted to the state line. The river at this point had total coliform densities that exceeded West Virginia's bacterial criterion in all samples, Ohio's bacterial criterion for water supply in 11 of 15 samples, and Ohio's bacterial criterion for recreation in all samples.

Salmonella Bacteria

To emphasize the sanitary significance of the indicator bacteria, a pathogen study was made at selected sampling points during the 1970 survey. While coliform densities indicate the magnitude of fecal pollution which may contain disease-producing organisms, detection of pathogenic Salmonella bacteria in water is positive proof that these disease-producing bacteria are actually present.

Modified Moore swab samples were studied for _Salmonella_ at the following stations:

Allegheny River at Sixth Street Bridge;
Monongahela River at Smithfield Street Bridge;
Beaver River at Route 18 Bridge;
Ohio River at Bellevue, Pennsylvania;
Ohio River at South Heights, Pennsylvania;
Ohio River at Pennsylvania state line.

Salmonella, an enteric pathogen, was isolated from all these sampling stations, proving the existence of a health hazard.

Phenols

Phenolic materials have plagued municipal water users of the Ohio River for years. Chlorination of finished water containing excessive phenols imparts a medicinal taste and odor to the water. Experience has shown that phenolic concentrations in the Ohio and Monongahela Rivers are at a maximum in the winter months when the biological degradation is retarded by cold water temperatures.

Recent data gathered by the U.S. Environmental Protection Agency's Pollution Surveillance, as shown in Table 12, illustrates the violation of Pennsylvania's phenolic criterion for the Ohio and Monongahela Rivers.

W. West

The Ohio River at the State boundary consistently exceeded the phenolic criteria of the States of West Virginia and Pennsylvania, especially in the winter months.

The report also dwells at some length upon the effect of discharging oxygen-demanding materials, and oil, heat, iron, and sludge deposits upon human health and aquatic life. I shall point out a few problems resulting from thermal discharges. I now read from page 66:

Heat Pollution and Temperature

Total industrial water use of the Ohio and Monongahela Rivers in this area exceeds 6.3 billion gallons per day, of which approximately three-fourths is used for once-through cooling water for thermal electric power generation. Cooling water for three major iron and steel producers could account for an additional 15 percent of the total water use. Present projections show that thermal electric power capacity will double every 10 years on the national average. In this reach of the Ohio River in Pennsylvania, this duplication of capacity is expected to occur in the next five years. This alarming increase of thermal power capacity poses a threat to water quality in the Ohio River. These waters cannot accept heated wastewaters without quality degradation and sacrifices of beneficial uses.

From the material which we have assembled, we have arrived at the following conclusions and recommendations:

Conclusions

1. The rivers in the conference area are polluted by industrial and municipal wastes, originating in Pennsylvania, and endangering the health and welfare of persons in Pennsylvania, West Virginia and Ohio.

2. Said rivers are polluted by untreated and inadequately treated domestic wastes that create bacterial pollution in the river; the coliform densities exceed the Federal-State Water Quality Standards criteria almost continually. The rivers can be used for a public water supply only with extensive treatment. Use of the rivers for recreation is hazardous to human health.

3. Said rivers are polluted by untreated and inadequately treated organic wastes from municipal and industrial sources that form toxic sludge deposits upon the river bottom and often deplete the dissolved oxygen content of the river below levels necessary to support fish and other aquatic organisms. The dissolved oxygen content of the river is often below the minimum concentration set in Pennsylvania's Water Quality Standards.

4. Said rivers often contain high concentrations of phenolics, originating from industrial discharges to the Ohio, Monongahela, and Allegheny Rivers in Pennsylvania

that cause fish flavor tainting and produce taste and odor problems in municipal water supplied in Pennsylvania, West Virginia and Ohio.

5. Said rivers are polluted by oil originating from industrial sources in Pennsylvania, that interferes with uses for recreation, fishing, and municipal water supplies. Oily sludges, toxic to bottom animals, cover much of the river bottom, and oils mark much of the shoreline.

6. Said rivers are polluted by waste toxic to fish and aquatic organisms. Populations of fish and other aquatic organisms are restricted to pollution tolerant species, and the fish which are present are inedible.

7. The temperature of the Ohio River from Pittsburgh to Chester, West Virginia during critical periods borders upon the maximum temperature permissible to sustain an adequate warm water fish population. The temperatures of the Monongahela River presently exceeds these temperatures during critical periods.

8. Municipal and industrial discharges to tributaries of the Ohio River in Pennsylvania, especially the Monongahela River, contribute substantially to the water quality problems in the Ohio River.

In order to abate this pollution of the Ohio River and its tributaries in Pennsylvania, the Environmental

Protection Agency recommends that:

1. All boroughs, townships and sanitation authorities in the Commonwealth of Pennsylvania that discharge municipal wastes to the Ohio River and its tributaries, except the Allegheny County Sanitary Authority, provide a minimum of secondary treatment for all their wastewaters. Such secondary treatment should provide a minimum of an 85 percent reduction of both suspended solids and oxygen demanding material throughout the year; the oxygen demanding material measured by the 5-day biochemical oxygen demand (BOD5) test.

2. The Allegheny County Sanitary Authority's treatment plant at Pittsburgh provide, as a minimum, a 90 percent reduction of both suspended solids and oxygen-demanding material throughout the year. The rate of discharge by this plant shall not exceed a BOD_5 load of 20,000 pounds per day and a suspended solid load of 40,000 pounds per day.

3. All industrial discharges to the Ohio River and its tributaries in Pennsylvania be treated to reduce the organic waste load by 85 percent as measured by the 5-day biochemical oxygen demand (BOD5) test.

4. All municipal waste treatment plants in Pennsylvania that discharge to the Ohio River and its

tributaries should provide adequate year-round disinfection of their wastewater effluents.

5. Wastewaters discharged into the Ohio River and its tributaries in Pennsylvania from municipal and industrial sources:

a. Shall not show irridescence nor contain more than 10 mg/1 of total oil;

b. Shall not contain amounts of the following substances that will cause the concentration in the receiving stream to exceed the acceptable level as specified in the most recent edition of the United States Public Health Service Drinking Water Standards:

Arsenic
Barium
Cadmium
Chromium, Hexavalent
Copper
Lead
Phenols
Selenium
Silver
Zinc

c. Shall not contain amounts of ammonia that will cause the concentrations of ammonia in the receiving stream to exceed 0.5 mg/l of ammonia as Nitrogen (N).

d. Shall not contain amounts of cyanides that will cause the concentrations of cyanides in the receiving stream to exceed 0.025 mg/l.

6. Wastewaters from industrial and municipal sources that discharge to the Ohio River or its tributaries in Pennsylvania not contain more than 7.0 mg/l of total iron nor 1.0 mg/l of manganese.

7. Wastewaters from industrial and municipal sources that discharge to the Ohio River and its tributaries in Pennsylvania shall not contain material toxic or harmful to aquatic life. Wastewaters are considered toxic if over half of the test organisms are fatalities in a 96-hour bioassay.

8. Wastewaters from industrial sources that discharge to the Ohio River and its tributaries contain no settleable solids nor a concentration of suspended solids in excess of 30 mg/l.

9. All new and proposed expansions of existing thermal electric powerplants along the Ohio River and its tributaries in Pennsylvania should include facilities for off-stream cooling throughout the year. In addition, the Elrama powerplant of Duquesne Light Company and the Mitchell powerplant of the West Penn Power Company, install

off-stream cooling facilities for year-round operation by December 1975. Such off-stream cooling facilities shall reduce the net rate, at which heat is added to the river by each plant, to less than 0.28 billion BTU's per hour.

10. All municipal and industrial waste sources in the conference area have the required treatment facilities completed and in operation by December 1973 except where completion is required earlier by the federally approved water quality standards. Interim dates for all waste sources in the conference area are to be submitted to the conference chairman, by the State agency, within 3 months. Interim dates to be submitted are as follows:

Preparation of Preliminary Plans
Preparation of Final Plans
Award of Contracts
Start Construction
Finish Construction

11. Concentrations of all materials shall be determined according to the procedures outlined in the latest edition of Standard Methods for the Examination of Water and Wastewater.

Mr. Chairman, this concludes the Federal statement. I request that this statement be entered into the conference record also.

MR. STEIN: Without objection, that will be done. That has been read into the conference record anyway.

(The document above referred to follows in its entirety.)

EPA STATEMENT

Mr. Chairman, Conferees, Ladies and Gentlemen:

Before I move into the report, copies of which have been furnished to each of you, I believe it would be helpful to indicate briefly the reason for calling this conference at this particular time.

The primary responsibility for the abatement or control of pollution of the waters within a State, belongs to the State, of course. The Federal Government intervenes only when the pollution of interstate or navigable waters in or adjacent to any State or States endangers the health or welfare of any persons. In this particular instance, it is the conclusion of the Environmental Protection Agency that the waters of the Monongahela and Ohio Rivers are polluted in Pennsylvania, and that this pollution is causing degradation of interstate waters involving the states of Ohio and West Virginia.

Pennsylvania has adopted water quality criteria which, in general, are acceptable and have been Federally approved. It is my understanding that in June, 1967, the Sanitary Water Board adopted an implementation plan, approved by the Federal Government, requiring all municipalities and industries to install secondary treatment facilities or its equivalent by July 1, 1972. The Sanitary Water Board directed that these orders be issued by June 30, 1968. Unfortunately, it appears to us that these orders requiring municipalities and industries to comply were not issued, in a large part, until June 1970. Thus two years have been apparently lost, and the July 1, 1972 completion date is, to an undetermined extent, no longer realistic. The purpose this Conference is to fix criteria and schedules which will be both reasonable and enforceable.

. . .

Now, I shall proceed to the basic points which are brought out in the report which is in your hands. For those who care to follow my statements, I shall indicate the page from which I am reading and shall also indicate when I am departing the written text. Going first, then to page 15:

Municipal Water Supply

The Monongahela River is used widely as a source of municipal water. About 623,000 people in this area are served by municipal water systems that use the Monongahela River as a raw water source. The South Pittsburgh Water Company alone serves about 480,000 people. Other major municipal users are the Charleroi, Elizabeth and North Versailles systems that serve 60,000; 37,600; and 16,000 people, respectively.

The Ohio River in Pennsylvania is not used extensively as a raw source for municipal water. In Pennsylvania, only the City of Midland uses the river as a raw water supply for approximately 7,000 people. Midland's raw water intake is located approximately four mile upstream from the Pennsylvania State line. East Liverpool, Ohio is the only other municipality in this area to use the river as a raw water source; this system serves about 30,000 people.[3] The extensive treatment used by the East Liverpool plant is indicative of the problems encountered when using the Ohio River as a raw water source. Chlorine dioxide is used for disinfection because of its characteristic of effectively destroying phenolic substances that cause taste and odor problems in finished water. High concentration of phenols and other taste and odor causing materials necessitate the use of carbon filters to

> remove the foulness from the water. In the winter months, even this extensive treatment proves ineffective when phenol concentration are high in the river.[4] All other municipal systems in this area rely upon ground water from infiltration galleries, Ranney wells, or drilled wells for raw water sources.

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The report also points out in the subsequent pages, the adverse effects of the pollution upon fishing and recreation. With respect to the use of the rivers for industry, I read as follows on page 18:

> Industrial Water Supply
>
> The Ohio and Monongahela Rivers are used extensively by industries in this area as a source of process and cooling water. Total water use exceeds 6.2 billion gallons per day, of which approximately three-fourths is used as once-through cooling water for thermal electric power generation. Major iron and steel producers account for approximately 20 percent of the industrial water use, the bulk of which is also used for cooling purposes. It has been estimated that cooling water comprises approximately 80 percent of the total water use in basic steel production, but reuse may alter the percentage considerably. The balance of the industrial water is used by metal processing plants, chemical plants, petroleum processing plants, and various other operations. Now

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Now let me turn to the question of criteria, and I am going to page 21:

> GENERAL WATER QUALITY CRITERIA
>
> Each State's Water Quality Standards include general criteria designed to protect the water uses of streams. The

following are the general criteria adopted by the respective States and the U.S. Environmental Protection Agency:

Pennsylvania

The water shall not contain substances attributable to municipal, industrial or other waste discharges in concentration or amounts sufficient to be inimical or harmful to the water uses to be protected or to human, animal, plant or aquatic life. Specific substances to be controlled include, but are not limited to, floating debris, oil, scum, and other floating materials, toxic substances; substances that produce color, tastes, odors or settle to form sludge deposits.

You will also note that the criteria of West Virginia and Ohio are set forth in detail, and, in general, are similar to the standards of the State of Pennsylvania.

This brings me to the real substance of this report, which of course, relates to the type and source of the pollutants being discharged into the rivers covered by the conference. I now turn to page 29 :

SOURCES OF WASTES

Waste discharges from municipal and industrial sources have deleterious effects upon receiving waters in the conference area. Municipal wastes contain oxygen demanding materials that can reduce dissolved oxygen in a stream; severe reduction of dissolved oxygen can limit or destroy fish, fish food organisms and other aquatic life. Municipal wastes also contain high numbers of intestinal bacterial from man's excretions, including pathogenic organisms. Objectionable surface scums, sludge deposits and turbidity in a stream may result from municipal waste discharges that contain greasy substances, settleable solids and suspended solids.

Industrial wastes may also contain oxygen demanding materials, settleable and suspended solids, and greasy substances and oils. In addition, some industrial wastes contain objectionable chemicals and toxic substances that can taint fish flesh, kill aquatic life and damage a water source for use as a municipal supply. Industries use water extensively for cooling purposes. Heated water reduce the dissolved oxygen saturation concentration of a water body and increase the biochemical oxidation of organic wastes, further reducing the dissolved oxygen content.

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The report also sets forth, as those of you who have copies will note, tables which indicate the nature of the discharges of the named municipalities and industries. As will be noted, there are 16 municipalities on the Ohio River between Pittsburgh and East Liverpool, all of which are comparatively small, except for the Allegheny County Sanitation Authority. Of these plants, the Allegheny County Sanitation Authority has primary treatment plus chlorination. The others (except for two small towns, which have secondary treatment) have only primary treatment. The Allegheny County Sanitation Authority, commonly known as ALCOSAN, contributes 84% of the bacterial load to the Ohio River, which is equivalent to a raw sewage discharge from 52,000 people.

The situation with respect to the Ohio River, pertains to the Monongahela River as well. Monongahela River communities, with the exception of McKeesport, are small and have secondary treatment facilities. Two communities, Monesson and Allenport, have no treatment facilities. Monesson and Allenport discharge untreated sewage from a total of 25,400 people, into the Monongahela River.

The tables list 22 major industrial discharges to the Ohio River in Pennsylvania, consisting mainly of chemical, steel and power plants. These plants discharge large quantities of phenols, suspended solids, oil, iron, zinc, and oxygen demanding material. In addition, there are 22 other dischargers listed in Table 7, page 37, about which very little is known, despite our review of the records of the State of Pennsylvania.

In the Monongahela River portion of the Conference area, there are seven major dischargers, five of which are United States Steel Corporation plants. These companies are discharging large quantities of phenols, cyanides, suspended solids, oil, and iron into the river. In addition, there are 19 other industrial dischargers about which very little is known, despite the review of the records of the State of Pennsylvania.

With respect to the discharges in the Monongahela River, EPA conducted an effluent sampling along the lower Monongahela River in early 1971. According to Table 6, which reflects data from that sampling program, phenols were discharged into the river at a rate of 2500 lb/day during this period. Now, I an turning to page 44:

OIL SOURCES

The Commonwealth's files contained information of oil loads from only the Crucible Steel Company at Midland, which discharged about 10,000 pounds per day of oil in a water-oil emulsion. EPA biologists, during the study in May - June, 1970, reported that "masses of dense globs of oils were observed floating downstream from a series of waste-water outfalls belonging to the Jones and Laughlin Steel Company at river mile 16.9. Severe oil pollution was apparent downstream from the Crucible Steel Company's waste-water outfalls at river mile 36.3".[11]

EPA's industrial effluent sampling program in early 1971 revealed that oil was evident in several industrial discharges to the Monongahela River. U. S. Steel's Irvin Works had a discharge that contained about 3500 pounds per day of oil.

HEAT SOURCES

The largest unnatural sources of heat to these two rivers in this area were six thermal electric power plants.

The two plants along the Monongahela River, the Elrama and Mitchell Plants, would theoretically raise the temperature of the river 41.9 degrees F during a low flow of 500 cfs. The remaining plants in the above table would theoretically raise the Ohio River 5.4 degrees F during a low flow of 3300 cfs. Other heat sources were major iron and steel plants which use about 80 percent of their total water usage for cooling.

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CYANIDES

The limited data available indicate that the Ohio River receives about 925 pounds per day of cyanides. Information on cyanide discharges were available for only Shenango, Inc., on Neville Island and Jones and Laughlin at Aliquippa; these loadings were 480 and 445 pounds per day, respectively. The effluent sampling program performed by EPA in early 1971 showed that about 1,000 pounds per day of cyanide were being discharged by industries into the Monongahela River.

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Now let me make a short statement concerning the effects of pollution. I am on page 51:

BACTERIAL POLLUTION

Municipal sewage contains enormous numbers of bacteria, among which there are frequently pathogenic bacteria, derived from human excreta. These pathogenic bacteria can cause gastro=intestinal diseases such as typhoid fever, dysentery and diarrhea. Infectious hepatitis, a virus disease, can also be caused by ingesting sewage-polluted water. Eye, ear, nose, throat or skin infections may result from bodily contact with such water. As the densities of pathogenic bacteria are reduced by sewage treatment or forces of natural purification, the hazards of contacting disease are proportionately reduced.

Sewage also contains readily detectable coliform bacteria, which typically occur in excreta or feces and are always present in sewage-polluted water. Though generally harmless in themselves, coliform bacteria have been considered indicators of the presence of pathogenic bacteria. The coliform group includes several types of bacteria which may come from sources other than excreta.

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I will now read portions of pages 55, 57, 59, 61, and 63:

COLIFORM BACTERIA

In the study of the Ohio River in May and June, 1970, total coliform densities of the Ohio River in Pennsylvania exceeded the 5,000 per 100 ml bacterial criterion for water supply in 43 of 44 samples (97.7 percent). In the recreational period, the river's total coliform density exceeded 1,000 per 100 ml in 179 of 180 samples (99.4 percent). The river at one station (river mile 6.7), had an average total coliform density of over 600,000 per 100 ml or 600 times the approved bacterial criterion for recreation in Pennsylvania.

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Salmonella Bacteria

To emphasize the sanitary significance of the indicator bacteria, a pathogen study was made at selected sampling points during the 1970 survey. While coliform densities indicate the magnitude of fecal pollution which may contain disease-producing organisms, detection of pathogenic Salmonella bacteria in water is positive proof that these disease-producing bacteria are actually present.

Modified Moore swab samples were studied for Salmonella at the following stations:

River Mile	Description
0.5	Allegheny River at Sixth Street Bridge
0.8	Monongahela River at Smithfield Street Bridge
3.0	Beaver River at Route 18 Bridge
4.2	Ohio River at Bellevue, Pennsylvania
16.0	Ohio River at South Heights, Pennsylvania
40.2	Ohio River at Pennsylvania State Line

Salmonella, an enteric pathogen, was isolated from all these sampling stations, proving the existence of a health hazard.

PHENOLS

Phenolic materials have plagued municipal water users of the Ohio River for years. Chlorination of finished water containing excessive phenols imparts a medicinal taste and odor to the water. Experience has shown that phenolic concentrations in the Ohio and Monongahela Rivers are at a maximum in the winter months when the biological degradation is retarded by cold water temperatures.

Recent data gathered by the U. S. Environmental Protection Agency's Pollution Surveillance, as shown in Table 12, illustrates the violation of Pennsylvania's phenolic criterion for the Ohio and Monongahela Rivers. The Ohio River at the State line consistently exceeded the phenolic criteria of the States of West Virginia and Pennsylvania, especially in the winter months.

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The report also dwells at some length upon the effect of discharging oxygen demanding materials, and oil, heat, iron, and sludge deposits upon human health and aquatic life. I shall point out a few problems resulting from thermal discharges. I now read from page 66.

HEAT POLLUTION AND TEMPERATURE

Total industrial water use of the Ohio and Monongahela Rivers in this area exceeds 6.3 billion gallons per day, of which approximately three-fourths is used for once-through cooling water for thermal electric power generation. Cooling water for three major iron and steel producers could account for an additional 15 percent of the total water use. Present projections show that thermal electric power capacity will double every 10 years on the national average. In this reach of the Ohio River in Pennsylvania, this duplication of capacity is expected to occur in the next five years.[18] This alarming increase of thermal power capacity poses a threat to water quality in the Ohio River. These waters cannot accept heated waste waters without quality degradation and sacrifices of beneficial uses.

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From the material which we have assembled, we arrived at the following conclusions and recommendations:

Conclusions

1. The rivers in the conference area are polluted by industrial and municipal wastes, originating in Pennsylvania, and endangering the health and welfare of persons in Pennsylvania, West Virginia and Ohio.

2. Said rivers are polluted by untreated and inadequately treated domestic wastes that create bacterial pollution in the river; the coliform densities exceed the Federal-State Water Quality Standards criteria almost continually. The rivers can be used for a public water supply only with extensive treatment. Use of the rivers for recreation is hazardous to human health.

3. Said rivers are polluted by untreated and inadequately treated organic wastes from municipal and industrial sources that form toxic sludge deposits upon the river bottom and often deplete the dissolved oxygen content of the river below levels necessary to support fish and other aquatic organisms. The dissolved oxygen content of the river is often below the minimum concentration set in Pennsylvania's Water Quality Standards.

4. Said rivers often contain high concentrations of phenolics, originating from industrial discharges to the Ohio, Monongahela, and Allegheny Rivers in Pennsylvania that cause fish flavor tainting and produce taste and odor problems in municipal water supplies in Pennsylvania, West Virginia and Ohio.

5. Said rivers are polluted by oil, originating from industrial sources in Pennsylvania, that interferes with uses for recreation, fishing, and municipal water supplies. Oily sludges, toxic to bottom animals, cover much of the river bottom, and oils mark much of the shoreline.

6. Said rivers are polluted by waste toxic to fish and aquatic organisms. Populations of fish and other aquatic organisms are restricted to pollution tolerant species, and the fish which are present are inedible.

7. The temperature of the Ohio River from Pittsburgh to Chester, West Virginia during critical periods borders upon the maximum temperature permissable to sustain an adequate warm water fish population. The temperature of the Monongahela River presently exceeds these temperatures during critical periods.

8. Municipal and industrial discharges to tributaries of the Ohio River in Pennsylvania, especially the Monongahela River, contribute substantially to the water quality problems in the Ohio River.

In order to abate this pollution of the Ohio River and its tributaries in Pennsylvania, the Environmental Protection Agency recommends that:

1. All boroughs, townships and sanitation authorities in the Commonwealth of Pennsylvania that discharge municipal wastes

to the Ohio River and its tributaries, except the Allegheny County Sanitary Authority, provide a minimum of secondary treatment for all their waste waters. Such secondary treatment should provide a minimum of an 85 percent reduction of both suspended solids and oxygen demanding material throughout the year; the oxygen demanding material measured by the 5-day biochemical oxygen demand (BOD_5) test.

2. The Allegheny County Sanitary Authority's treatment plant at Pittsburgh provide, as a minimum, a 90 percent reduction of both suspended solids and oxygen demanding material throughout the year. The rate of discharge by this plant shall not exceed a BOD_5 load of 20,000 pounds per day and a suspended solid load of 40,000 pounds per day.

3. All industrial discharges to the Ohio River and its tributaries in Pennsylvania be treated to reduce the organic waste load by 85 percent as measured by the 5-day biochemical oxygen demand (BOD_5) test.

4. All municipal waste treatment plants in Pennsylvania that discharge to the Ohio River and its tributaries should provide adequate year-round disinfection of their waste water effluents.

5. Waste waters discharged into the Ohio River and its tributaries in Pennsylvania from municipal and industrial sources:

   a. Shall not show irridescence nor contain more than 10 mg/l of total oil

   b. Shall not contain amounts of the following substances that will cause the concentration in the receiving stream to exceed the acceptable level as specified in the most recent edition of the USPHS Drinking Water Standards:

Arsenic
Barium
Cadmium
Chromium, Hexavalent
Copper

Lead
Phenols
Selenium
Silver
Zinc

c. Shall not contain amounts of ammonia that will cause the concentrations of ammonia in the receiving stream to exceed 0.5 mg/l of ammonia as Nitrogen (N).

d. Shall not contain amounts of cyanides that will cause the concentration of cyanides in the receiving stream to exceed 0.025 mg/l.

6. Waste waters from industrial and municipal sources that discharge to the Ohio River or its tributaries in Pennsylvania not contain more than 7.0 mg/l of total iron nor 1.0 mg/l of manganese.

7. Waste waters from industrial and municipal sources that discharge to the Ohio River and its tributaries in Pennsylvania shall not contain material toxic or harmful to aquatic life. Waste waters are considered toxic if over half of the test organisms are fatalities in a 96-hour bioassay.

8. Waste waters from indsutrial sources that discharge to the Ohio River and its tributaries contain no settleable solids nor a concentration of suspended solids in excess of 30 mg/l.

9. All new and proposed expansions of existing thermal electric power plants along the Ohio River and its tributaries in Pennsylvania should include facilities for off-stream cooling throughout the year. In addition, the Elrama power plant of Duquesne Light Company

and the Mitchell power plant of the West Penn Power Company, install off-stream cooling facilities for year-round operation by December 1975. Such off-stream cooling facilities shall reduce the net rate, at which heat is added to the river by each plant, to less than 0.28 billion BTU's per hour.

10. All municipal and industrial waste sources in the conference area have the required treatment facilities completed and in operation by December, 1973 except where completion is required earlier by the Federally approved water quality standards. Interim dates for all waste sources in the conference area are to be submitted to the conference chairman, by the State agency, within three months. Interim dates to be submitted are as follows:

Preparation of Preliminary Plans
Preparation of Final Plans
Award of Contracts
Start Construction
Finish Construction

11. Concentrations of all materials shall be determined according to the procedures outlined in the latest edition of Standard Methods for the Examination of Water and Wastewater.

MR. STEIN: Are there any comments or questions?

MR. LYON: Mr. Chairman, I would like to ask Mr. West some questions, if I may.

In the second paragraph of the statement you read, Mr. West, you said that the orders issued by Pennsylvania had been delayed and not issued until 1970. Where did you get that information?

MR. WEST: From Region V, Department of Health.

MR. LYON: You mean Department of Environmental Resources.

MR. WEST: Pardon me.

MR. LYON: What would you say is the biggest pollution source on the Ohio and Pennsylvania -- the biggest single source?

MR. WEST: Would you kind of restrict that to what type of parameter you are talking about?

MR. LYON: By our own report.

MR. WEST: Well, what I --

MR. LYON: Let's talk about BOD.

MR. WEST: Okay. Well, BOD without a doubt, of course, is the Allegheny County Sanitary --

MR. LYON: And would it come as a surprise to you to find out that the ALCOSAN were issued in 1966?

MR. WEST: Yes, Mr. Lyon, I am aware that that plant is under construction.

MR. LYON: Well, don't you think your report ought to mention that?

MR. WEST: Well, you have mentioned it here now. But we are aware that the thing is under construction.

MR. LYON: Are you aware of the fact that all of the orders to industries regarding pH and iron, which is one of our biggest problems that you are complaining about, were ordered not in 1970 but in 1967?

MR. WEST: February 28, yes, sir.

MR. LYON: Well, your report doesn't say that, Mr. West.

MR. WEST: Well, I couldn't read the whole report here, and I can't really -- I don't want to take your fire away from you. I don't want to read what you have done. I think that is up to you to read that.

MR. LYON: Oh, I see.

Would you consider secondary treatment for sewage treatment plants to be important orders?

MR. WEST: Yes, sir.

MR. LYON: Would it come as a surprise to you that they were issued in 1968 and not in 1970?

MR. WEST: January 1968, yes, sir. I know that.

MR. LYON: Well, your report doesn't say that, Mr. West.

MR. WEST: I know that, Mr. Lyon.

MR. LYON: I have a few other questions, Mr. Chairman.

In the introduction in your report, you outline the purposes of this report to talk about water quality and water uses. Don't you think that when the Federal Government presents a report to a group such as this that it ought to also tell what the States have done and what the municipalities have done, and what the industries are doing to clean up the pollution?

MR. WEST: Well, what we have here, if a municipality or an industrial firm -- we didn't point out the things that they did; all we are doing is pointing out things that are wrong presently.

For instance, we stated what plants had secondary treatment plants, what had primary plants. I even stated that in the statement that most of the municipalities along the Monongahela River have secondary treatment with some exceptions.

MR. LYON: But where they don't have treatment or where they don't have secondary treatment, don't you think the report is sort of incomplete by not indicating what they are doing to correct that?

MR. WEST: Well, Mr. Lyon, with all of the municipalities and industries along the river, if I stood up here as a PR man for every municipality and industry, we might be here for several days.

MR. LYON: Well, what about the biggest one? You said ALCOSAN was the biggest one. Don't you think you ought to at least mention what they are doing?

MR. WEST: The secondary plant is under construction and, of course, the report states that they have primary treatment to start with.

MR. LYON: Does it say that their plant is under construction?

MR. WEST: No, it doesn't.

MR. LYON: Don't you think that is sort of an important item?

MR. WEST: It is a very important item to the Ohio River.

MR. LYON: Well, it is an important item to the people in this area. They are spending close to $50 million to do that, and it is sort of important to them to have the Federal Government recognize that. Apparently you don't think that is important.

MR. WEST: Well, the Federal Government recognizes the fact. In fact, the Federal Government is helping to pay for it.

MR. LYON: That is correct. So it ought to be mentioned anyway.

On page 3 of your report, you say the criteria — I am talking about the big report now — you say the criteria were approved by the Administrator of the U. S. Environmental Protection Agency. That makes them Federal standards, doesn't it?

MR. WEST: Yes, sir.

MR. LYON: On page 4 of your report, you talk about unusually large loads of industrial wastes and municipal wastes. What would you expect in an area like that, small loads?

MR. WEST: No. With the type of plant you have in this area, you would expect large discharges. But large discharges could be treated also. In fact, most plants, as you know, their wastewater problems are from their process water, and most of these discharges -- especially in steel plants and thermal electric power generations -- are mostly cooling water and, of course, if it is such that it affects the stream with all of the dilution from cooling water, I just can't imagine what the process water looks like.

MR. LYON: We will get to the process water in just a few minutes.

On the bottom of page 4, Mr. West, you say that the fish population is mainly comprised of those species that are not considered sport fishes.

What would you expect in a much less industrially- or municipally-used river such as, say, the Upper Allegheny? Would you expect that picture to be different?

MR. WEST: You have to forgive me; I am not a biologist, and a biologist wrote that statement, and I don't feel that I am qualified to answer that statement.

What he said, from their fish studies there — he said the fish in the Ohio River are not considered sports fishes. He stated that at times that you do find isolated cases where there are some sports fishes in the Ohio River. Notably during the 1959 steel strike, the studies by ORSANCO and, I think, the University of Louisville showed this, that there was a considerable increase in the number of species of what he would call sports fishes in the Ohio River and its tributaries during that particular strike.

MR. LYON: Well, I don't think it should even — maybe you have a biologist here who could answer that question.

MR. STEIN: What is the question?

MR. LYON: Well, the question is — the implication is that this is an unusual condition. The point is that, to our knowledge, even in a stream that is in real good shape, the fishes are not sports fishes.

MR. STEIN: That may be. But I think the answer, as I understand the question -- and maybe they have a biologist here -- is that but for manmade pollution, the Ohio River could support a sport fishery, as indicated by the conditions during the steel strike.

The question is: What kind of treatment are you going to get whether you want that kind of river or not? Is that the question? Whether, if we had adequate treatment, we could expect to have sports fish in this river? Is that the kind of answer you want?

MR. WEST: Mr. Lyon, if you would, would you turn to page 87 of the big report?

MR. LYON: Okay, fine.

MR. WEST: And I shall read: "A July 1959 study at Montgomery Locks and Dam" -- that is immediately -- that is the second dam downstream from Pittsburgh -- "produced 21 fish species, which is the greatest number collected in the lock chamber samples in this section of the river. This study was conducted following closure of the steel industries by strike. Krumholz and Minckley compared the 1959 studies (before and after the strike) and concluded that after the industry shutdown, there was an improvement in water quality accompanied by an increase in the variety and abundance of fishes. Further, they showed the principal difference in species composition was the occurrence of pollution sensitive fishes that invaded the previously polluted area, presumably from nearby unpolluted waters. Six of these species, collected in the study after the industry closure, were not collected previously in the lock chambers, nor have they been collected since."

This is basically what we are talking about, about this section of the river.

And I would also say that --

MR. LYON: Now wait a minute. Talking about 12 years ago, right? 1959.

MR. WEST: Well, the 6 species still haven't come back yet.

MR. LYON: Well, your next paragraph talks about a marked increase in total weights and total numbers since that time.

MR. WEST: I agree that there has been marked improvement in the river since that time.

Of course, one thing is the Allegheny County Sanitary Authority plant came on just about this time, so there would have to be a marked improvement in the water when you are talking about somewhere in the order of 200,000 pounds per day of BOD going into the river raw.

MR. LYON: And you would expect another big improvement when the present project goes on line, right?

MR. WEST: Most definitely.

MR. LYON: But your report doesn't say that.

MR. STEIN: Mr. Lyon, let me try to clarify something, because I think this is important in the record.

I am not sure I got the implication from you, but is the notion that when adequate treatment facilities are put in that we can expect what is generally considered to be sport fishes to come back to the river? Or are we under the present program, as you envision it, going to have what are considered nonsport fish or raw fish in the river from here on out?

MR. LYON: Well, we can have one of our people talk about that, Mr. Stein, but in our submission to EPA, 1968, which was 3 years ago, we indicated to you clearly the kind of fish population that we were trying to protect in the Ohio. So this shouldn't come as any news to you, but I will be very happy to have Mr. Schoener, who is our basin engineer, speak to that point.

MR. STEIN: Why don't we follow the procedure? But I think this is the thing we have to identify.

MR. LYON: Well, since you raised the question I think we ought to answer it.

Ken, would you comment on that? This is Mr. Schoener who is our basin engineer.

MR. SCHOENER: Well, the criteria that we adopted for the main stem Ohio was said to protect warm water fish propagation.

MR. STEIN: Well, I don't know. Does that include game fish in the terms that we were using or not?

MR. SCHOENER: All warm water fish.

MR. LYON: I don't think you are talking about trout, are you, Mr. Stein?

MR. STEIN: I wasn't. You are the man who brought the fish up. In other words, let's see if we have the answer correctly. What you are saying is that we are going to have a program here that is going to provide a habitat for the reemergence of game water fish in the Ohio River, in the area of the conference, is this correct? Warm water game fish?

MR. LYON: That not only is correct, Mr. Chairman, but that is what we told the Secretary of Interior in 1968 and that is what he approved.

MR. STEIN: Well then, I am sorry, Mr. Lyon, I didn't understand your question when you asked him what would you expect. Evidently if both you and Mr. West expect the program to lead to warm water game fish appearing near the Ohio, then we have the same objective. And I think the indication that the fish are not there now might be an indication that there are conditions which prevent them from being there that we have to correct.

MR. LYON: Well, that was not my original question, Mr. Stein, but we will go on --

MR. STEIN: Right.

MR. LYON: I hate to belabor this point because we have a lot of other questions about this report.

The conclusions in the original report -- and I suspect the summary, too -- by the way, I would like to, with your permission, introduce in the record a story from the Pittsburgh Press, dated 9-22-71, saying, "Duquesne Light Ecology Study Bares Ohio River Fish Surprise."

MR. STEIN: Well, I am glad to have this for the record. The last time we were in Pittsburgh, you couldn't have this.

MR. LYON: Well, I don't know.

MR. STEIN: No, the Press wasn't publishing.

MR. LYON: Oh, I see. (Laughter) I am not sure whether they are today or not either, but I hope they are.

(The article above referred to follows in its entirety.)

Fish study turns up varities, including walleyes! ! !, in Ohio River.

Duquesne Light Ecology Study Bares Ohio River Fish Surprise

By FRED JONES
Press Conservation Editor

A continuing ecological study, sponsored by the Duquesne Light Co. in the Beaver County area surrounding a nuclear power station now under construction, has turned up a surprise for area fishermen.

A company spokesman said biologists have identified 15 varieties of whole fish in a 10-mile stretch of the Ohio River downstream from the new plant being built adjacent to the existing Shippingport nuclear power station.

Identified Species

Identified species of fish included gizzard shad, carp, black and yellow bullheads, channel catfish, bluegills, green sunfish, rock bass, large mouth bass and black crappies.

The biggest surprise was the discovery of occasional walleyes which normally inhabit the upper reaches of the Allegheny River.

Stanley G. Schaffer, president of the utility, said the fish population survey was just part of the overall study begun in February 1970.

The study is being carried out by the NUS Corp., Rockville, Md., through its Cyrus W. Rice Division in Pittsburgh.

Schaffer explained that the continuing study would:

✔ Determine what areas and after the new Beaver Valley nuclear power plant goes into operation.

✔ Determine the condition of the aquatic environment in the Ohio River near the plant site, including the river's biological, chemical and physical characteristics.

✔ Determine what changes — if any — occur in the river and the surrounding area after the plant goes into operation.

45 Monitoring Units

Schaffer said 45 monitoring stations have been established within a 10-mile radius of the plant site to measure possible radiation.

"To assure that no potential health hazard to the general public exists because of released material from the Beaver Valley station, existing radiation levels are being measured in samples of air particulates, surface and ground waters, river bottom sediments, fish, soil, milk and wildlife," Schaffer said.

The utility president said tests conducted since the Shippingport plant became operational in 1957 showed the radioactivity released was a very small fraction of that allowed by the Atomic Energy Commission (AEC) and the Commonwealth of Pennsylvania.

"Surveys indicated no change in the environmental levels from those existing before the station started operation," Schaffer said.

China Blast Noted

"The highest level of radioactivity ever measured in the Shippingport area was immediately after the Peoples Republic of China exploded a nuclear device in the atmosphere," Schaffer said.

In addition to checking the environment, the company commissioned the Alden Research Laboratories of Worcester Polytechne Institute to build a 100-foot-long model of a 2½-mile stretch of the Ohio at the new plant site.

"It enabled us to determine any changes in temperature which the discharges from either station would cause at various places in the river as well as the best method of discharge to assure the least effect on the river," Schaffer said.

The company said the study, being conducted at a cost of about $500,000, will enable the company to eliminate or minimize any adverse effects in the area.

The Pittsburgh Press, Wednesday, September 22, 1971

MR. LYON: Okay. On page 5 of your report, it states that: "The dissolved oxygen content of the river is often below the minimum concentrations in Pennsylvania's Water Quality Standards." And my question is: What do you mean by "often" and what is the trend? Are things getting worse or are things getting better?

MR. WEST: I think it is spelled out in the report, in the number of days that the dissolved oxygen content was below the 4.0 mg/l.

MR. LYON: Right.

MR. WEST: And, of course, you know a fish -- he doesn't live by average concentrations.

MR. LYON: But you are not answering my question. My question is: When you take the percent of days that the standard is not being met over the past several years, what is the trend? Are things getting worse or are things getting better?

MR. WEST: Using the ORSANCO monitor I would say they were getting better.

MR. LYON: I think that is important in terms of telling the story of what is going on in the Ohio, don't you?

MR. WEST: Well, in the report it states for the years that I had available when I wrote the report how many days each year that the criteria was violated, and, of course, it is spelled out in there.

MR. LYON: Yes. But most people like to know whether things are getting better or getting worse, and I think I wanted to bring this point out.

MR. STEIN: Walter, would you want to wait to the end of your questions, or do you want to get into it now with you because, again, I didn't understand that series of questions. I would be glad to wait until you are finished.

MR. LYON: Well --

MR. STEIN: The point is, as I understand temperature dropping below a point, it either kills or it is deleterious to fish.

MR. LYON: No, we are talking about D.O.

MR. STEIN: D.O. -- I am sorry. I stand corrected.

Once it drops, it wipes out the fish or is deleterious to fish, and the question of a trend or the number of days, once you wipe out the fish, you can only kill a fish once.

MR. LYON: All right, now let's talk about that, Mr. Stein.

Mr. West, how many fish kills have there been recently due to oxygen depletion in the Ohio River?

MR. WEST: Well, you know, it is -- when you have a fish kill, of course, a lot of times by the time you get there to investigate you really never find the source. I don't have a listing of the fish kills in the Ohio River within recent times.

MR. LYON: Well, would it come as a surprise to you to find out that most of the fish kills we have had in the recent past in this area have been due to mine drainage because of slugs of acid that have come from the acid portions of the watershed?

MR. WEST: I am aware of some of the problems that we have with the acid mine problem.

MR. LYON: Would you consider mine drainage to be an important problem?

MR. WEST: Well, there is no doubt about it.

MR. LYON: Well, your conclusions don't say that. They don't even mention mine drainage.

MR. WEST: I said that they are an intermittent problem probably in the Ohio River which derives basically from the tributaries.

I wouldn't say that in the main stem of the Ohio River that it comes from sources along the river. Usually if there is a fish kill, it is a fish kill that starts either in the Allegheny or Monongahela Basin and proceeds down river.

MR. LYON: That is right. Okay. On page 7, Mr. West, you have a lot of recommendations, and they were further added to in your summary, which you presented today and which was not available to us earlier, but these essentially change many of the presently approved Federal standards.

Now I have one very simple question: Which standard do you want us to follow? The one that the Secretary of Interior in 1968 approved, or these?

MR. WEST: You will have to get the specifics on that. What recommendation are you talking about and what water quality standards?

MR. LYON: I am talking about all of the recommendations that are -- let me say, most of the recommendations that are listed on page 7 and page 8 and page 9 of your report. You have a new standard for sewage; you have a new standard for ALCOSAN; and I might point out to you that EPA only in 1970 approved a grant to ALCOSAN, and I would like to introduce into the record, Mr. Chairman -- when I can find it; it is in this pile here someplace -- the Federal regulations saying that EPA will not approve a grant until the discharge meets Federal standards.

Now in 1970 you approved one thing, which is 60,000 pounds; now you are telling us a year later it should be 20,000 pounds. Which do you want? The project is under construction. Shall we tell Mr. Wald that he is to stop now and switch around and do something else?

MR. WEST: The construction grant that EPA gave their money to stated that there shall be a 90 percent removal of both suspended solids and oxygen-demanding material. And it did not state a total pound influent or effluent, and what we are saying is that if the ALCOSAN plant is allowed to discharge over 20,000 pounds per day of BOD-5 loading, that it will violate water quality standards.

The plant, as it is being constructed now, can be operated within these restrictions very easily, Mr. Lyon.

MR. LYON: Well, let me again ask you this question: Do or don't Federal regulations say that before you will approve a grant, you have got to be sure that the Federal standards are going to be met.

Have you ever approved one that would allow violating the Federal standards?

MR. WEST: I said if when the plant is completed, with the present influent loading, the plant will be meeting water quality standards; it will be meeting this requirement here. However, if the plant is allowed to take an additional loading -- in other words, to increase their servicing to a point where they exceed this 20,000 pounds per day of BOD-5 -- then the water quality standards will be violated.

MR. LYON: Well now, the implication of what you are saying, Mr. West, is that what you want Mr. Wald to do is to put on a sewer ban and stop all construction until this new standard is met. Is that what you want him to do?

MR. WEST: No, I said that -- right now -- that with the present loading that they can meet this 90 percent loading figure, or this 20,000 pound loading figure. However, I don't think the plant should be allowed to expand to take on additional customers to the point where their influent will be in the order of 200 million gallons per day, and their effluent will be in the order of 30,000 to 35,000 pounds per day.

MR. LYON: In other words, you don't want him to come up to the design capacity of what the plant is designed for, is that right?

MR. WEST: He can go up to 200 MGD if they would like, but the only thing we are saying is going to have to increase the level of treatment to reflect -- in other words, I am not saying that Mr. -- what is his name?

MR. LYON: Wald.

MR. WEST: Excuse me. -- Mr. Wald has to shut off his customers. What I am saying is that if Mr. Wald increases to 200 million gallons per day, he is going to have to go beyond that 90 percent to protect the river.

MR. LYON: Well, we are not talking about shutting off present customers but you did talk about shutting off additional flows to control the load before the plant gets to its capacity, is that right?

MR. WEST: I am saying that if they take on additional services to the point where the plant can no longer, at a 90 percent removal, can have an effluent of 20,000 pounds per day, then they are going to have to increase the level of treatment.

MR. LYON: Do you have any idea how long that will take in terms of design and construction?

MR. WEST: Well, I know it would take several years but the thing about it is today he is not pressed. When that plant is constructed, he can meet this 20,000 very handily. And while we are on the subject, the 60,000 pounds per day -- I don't understand why the State has picked out a 60,000 pound per day of BOD loading when we know that this will cause a problem with D.O. in the river. It presently only shows that the ALCOSAN plant would only have to treat 70 percent -- have a 70 percent removal with today's loading.

MR. LYON: Well, Mr. West, I don't think it should come as a surprise to you that the 60,000 pound limitation was established by the State in 1966, that it was submitted to ORSANCO on which EPA and its predecessors are represented, and that it was submitted to EPA as part of its grant application, and that only last year EPA approved it -- exactly the 60,000 pounds.

Now, there is a fair chance -- let's agree on that -- that that plant can do better than that. But that is the design and those are the limits, and that is specifically what was given as an assignment to the engineers when they designed that plant.

EPA was represented on ORSANCO when that submission was made. It did not object. It has been part of our record ever since then, and now we find in 1971 that EPA has changed its mind about this issue.

MR. WEST: What we are pointing out, Mr. Lyon -- we are pointing out not what we feel that the treatment plant can do or how many people it can service, we are pointing out what we think the river can take. That is why we are here.

MR. LYON: All right, then, let's talk about that for a moment.

MR. STEIN: Sixty against twenty?

Walter, perhaps this may be the vital point in the conference. If we are dealing with your major sewage treatment plant, and if we are dealing with the difference between 60,000 pounds a day of BOD (what Pennsylvania evidently thinks the plant is going to operate under) and 20,000 pounds a day or 1/3 of that (perhaps what the locality and the Federal people are saying is all that can be put out) -- if we are going to protect the quality of the waters, I think we better get at this. As I view the charge of the conference, we are here to protect the waters. I am very interested in what past discussions and what rules and regulations were, etc., but unless we can come forward with an agreement on a discharge that is going to protect the river we are all kidding ourselves.

MR. LYON: Okay, let's talk about that.

First of all, I don't think your statement is correct that Pennsylvania thinks that. EPA thinks that too because EPA approved the grant. And under EPA's regulations they cannot approve a grant if it doesn't protect the river.

But let's talk about that question, Mr. Stein. On page 59, you talk about the methematical model that was used to arrive at the 60,000 pounds.

What kind of a model did you use for that? Was it a steady-state model or dynamic model?

MR. WEST: This model is from the Ohio River

Valley Sanitation Commission.

MR. LYON: All right. But what kind of a model —

MR. WEST: I think Mr. Boes would have to answer that. I am not that familiar with it.

MR. HORTON: I can answer that. It is a steady-state model.

MR. LYON: Now all of us know today -- and to those of you who don't know -- we are talking about a mathematical model of the river. And a steady-state model is one that assumes certain items to be constant, such as temperature and flow. EPA gave a grant to ORSANCO to develop a dynamic model.

Nowadays a steady-state model is like a model-T among cars, and a dynamic model is like a Cadillac. My question is: Why did you use the model-T to come up with your 20,000 pounds? Why didn't you use the dynamic model, which you gave money to ORSANCO to develop?

MR. WEST: I didn't give the money to ORSANCO; EPA did.

MR. LYON: That's right. I am talking about EPA.

MR. WEST: And I am not aware of that dynamic model.

MR. LYON: Well, EPA gave how big a grant, Bob?

MR. HORTON: About $350,000.

MR. LYON: -- a large grant to ORSANCO to develop a very fine sophisticated mathematical model that will give us a much more precise answer to that question than we would get from the steady-state model or the model-T. It was not used.

And I have one other question. On page 59, using your steady-state model, you say that at river mile 54.4 the oxygen content would drop to 1.6 mg/l. I only have one question: What is the lowest D.O. you have ever gotten in about that reach of the river?

MR. WEST: This is not one of our normal sampling points, 54.4. This came from the model. I can only relate to probably the South Heights station down right below here, mile point 16, where we have any semblance of complete data. I wouldn't even call that complete, but it is the best available.

MR. LYON: Let's look at South Heights.

MR. WEST: There is no continuous readout that I know about in this area from South Heights on down.

MR. LYON: All right, what did you find at South Heights? What is the lowest D.O. you ever found at South Heights?

MR. WEST: I don't have those with me right now. I think they were in the order of about 2.1, or something like this. I am not absolutely sure on this, and I don't have the data right here. Excuse me a second.

MR. LYON: Well, maybe Mr. Horton -- do you happen to know?

MR. HORTON: I don't. I have with me a member of the staff. I don't know if he knows or not.

MR. LYON: What do the low D.O.'s look like at South Heights? Do you know?

MR. BOES: Probably around 2.0.

MR. LYON: Now that is with the present treatment plant, right? -- with discharging more than 120,000 pounds of BOD. So this must suggest to you that maybe you shouldn't use the steady-state model because when you cut that in half you are likely to get a much higher D.O.

You take half of the load off the river, the D.O. would climb much higher than 2.0; maybe even meet the standard.

I would suggest, Mr. Stein, that we use this dynamic model which is available to us and apply it to this section of the river and see what it shows.

MR. WEST: May I ask a question here?

MR. STEIN: Go Ahead.

MR. WEST: Am I on for asking questions?

MR. STEIN: Sure. By the way, anyone who comes up can ask questions as well as make statements. Go on.

MR. WEST: Mr. Boes? Is Mr. Boes here? The question I wanted to ask about the dynamic model is: How many waste sources does it consider? Does it consider all industrial sources in this area?

MR. BOES: Actually, as it is set up, it can manipulate around 1,000 individual inputs as waste sources.

MR. WEST: And have these sources been put into the model already?

MR. BOES: The model itself that is under development is being restricted in the Cincinnati area. We have not tried to extend it to the upper river.

MR. STEIN: When will we get an answer, do you know?

MR. LYON: I have no idea, but I suggest that it be used. It means a lot of dollars to the people in this area to get the right answer to this. We thought we had it, but apparently EPA since last year changed its mind.

MR. STEIN: Well, I have heard nothing to indicate that EPA changed its mind. Maybe I missed something here, but I think the issue that we have here is a fundamental one, and I think we are just going to have to grapple with that.

If Mr. West, in giving the Federal report, says that the Allegheny County Sanitary Authority plant is not to exceed a BOD loading of 20,000 pounds per day, and Pennsylvania is thinking or anyone is thinking in terms of 60,000 pounds a day, then I think we have to resolve this figure because that spread seems very, very large.

I think also Mr. West stated, as I understood it, that with the design of the plant and proper operation of the plant and the handling of the present loading of the plant, that 20,000 pounds per day could be achieved at the present time, when it opened, and that you would have lead-time to go up with the rest.

Now I think this is the issue on this that we are going to have to resolve.

MR. LYON: I think the issue, Mr. Stein, is the constant vacillation on the part of EPA about what it wants.

MR. STEIN: I don't see a vacillation here. The way I look at this -- I wish -- I am waiting for the day that one day we are going to come to one of these conferences and Pennsylvania is going to have a lower number than the Federal Government. I haven't seen that yet, and it is always this way.

MR. LYON: Well, Mr. Chairman, I don't want to perpetuate this problem.

Let me merely summarize regarding the recommendations that you have made, that in 1967 Pennsylvania submitted standards to the then Secretary of Interior. These standards were approved without exception in 1968.

In 1970, another quasi-Federal agency, ORSANCO, on which EPA is represented, approved another set of standards that is somewhat different but fairly close to what was approved orginally by the Secretary. In 1970, Mr. Ruckelshaus adopted a new set of regulations called 18 CFR 601, which requires comprehensive planning and also says, as part of that plan, if there is a need, additional standards should be adopted.

So we have before us three sets of Federal standards. This report, which you have presented us today, provides us with a fourth set of Federal standards.

My question is: Which one do you want Pennsylvania to follow?

MR. WEST: Well, first of all -- is this my question?

MR. STEIN: Yes. Sure. (Laughter)

MR. WEST: Thanks, Murray.

MR. STEIN: That is an easy one, but go ahead.

MR. WEST: First of all, the water quality standards -- I can't believe that we adopted these in 1967, or you adopted them in 1967, and we approved them in 1968 --

are static. I don't believe for a second that we can sit still on these standards.

All we are really doing here is more or less interpreting what we think will meet these water quality standards. We are not asking new standards. I didn't ask that you adopt new criteria of any type. All I am saying is that to meet the water quality standards, I think, and the EPA staff agrees, that we should meet these recommendations. These are the recommendations to meet the water quality standards. They aren't standards in themselves.

MR. LYON: Well, if they are not standards, what do you want us to do about them, forget about them?

MR. WEST: Forget about what, Walter?

MR. LYON: Do you want Pennsylvania and these States to follow the recommendations that you made today which are different from what has been approved both by ORSANCO and by the Secretary?

MR. STEIN: I think you are talking at cross purposes.

Let me again state this as I understood what Mr. West said. He said we adopted certain stream standards. The standards are not being changed. He is giving you some figures for treatment at your plants which he believes will be required to maintain the water quality in the river. And presumably that is what you are objecting to. The standards are not being changed at all, according to Mr. West. What he is saying is that he is telling you what, in his opinion, your plants will have to do to meet these water quality standards which are approved.

MR. LYON: Well now, Mr. Stein, let's talk about that for a moment.

When we adopt standards — and you are the person who had a lot to do with that word and its introduction into the Federal law -- would you explain to us what the word "standard" means to you?

MR. STEIN: I will explain to you what the word "standard" means as applied by the -- as defined in the Federal law. "Standards" means criteria given to protect water uses in a stream. These are usually in terms of materials which can be present in a stream or conditions in a stream such as salt, dissolved oxygen, phenols, lead, or what-have-you. In addition to that, it includes an implementation plan and an enforcement plan for achieving the standards.

MR. LYON: Now the implementation plan is what is proposed to be changed here. To trigger that implementation plan requires, first of all, very careful studies of the stream in order to make sure that every discharger's discharge will protect the criteria that you have mentioned. That means mathematical models have to be run, and based on those, specific orders with effluent limitations are issued. That triggers a long chain of events including feasibility studies by engineers, final plans by engineers, financing, construction, and so on. It triggers off a long cycle.

These abatement plans that we are talking about were part of our submission to the Secretary of Interior. It is that very thing that you are proposing to change here.

Item 1 -- let me cite it.

MR. STEIN: Go ahead.

MR. LYON: Item 1, you are changing the requirement for sewage treatment.

Item 2, you are changing the ALCOSAN requirements only 1 or 2 years after you approved a different standard.

Item 3, you talk about treating all industrial wastes which leaves no room for recycling -- a new concept. We have never heard of it before. It says all industrial wastes have to be treated. Why not change processes to reduce the waste?

It has a whole new standard in here about disinfection. There is a whole new standard in here about phenols, which we frankly think can't be met. You have got a whole new standard here on settleable solids, and so on.

These are new aspects of the abatement plan which we submitted, many of which have been approved by EPA as part of the ORSANCO standards, as part of our submission to the Secretary of Interior, and as part of the applications for grants.

It changes the whole picture and what it does really is to give polluters an excuse to say: Well, we just don't know what the Federal Government wants; we are just going to sit back and wait until this issue is settled.

MR. STEIN: You know, I think Mr. West has answered that. The way I understand it is in what Mr. West said in the beginning of why we are here -- to change the implementation plan.

You put in a plan to install secondary treatment or its equivalent -- and I am just stating these as the statements of Mr. West -- by July 1, 1972. The July 1972 date, according to Mr. West, will not be met by the dischargers in Pennsylvania.

Therefore, he comes forward with an olive branch, as I see it, and says the purpose of this conference is to fix criteria and schedules which will be both reasonable and enforceable.

In other words, this is a Federal proposal that the Pennsylvania dischargers did not meet or will not meet the July 1972 date that you originally submitted and was approved. They are going to go in with an extension. This was due, as I understand Mr. West, through whatever reason, to default by people other than the Federal Government.

When he says we are going to change the schedule, sure, they are proposing to change the schedule. But the proposal is they are forced to do this by facing the realities, because the original schedule submitted by Pennsylvania and approved by the Federal Government is not going to be met.

MR. LYON: Mr. Stein.

MR. WEST: Could I add something to that? I think some of those questions were directed my way, so I think I ought to have a shot at them anyway.

MR. STEIN: Yes.

MR. WEST: First of all, in regard to the treatment, the Environmental Protection Agency and, of course, the Department of Interior before that, maintained that secondary treatment was the minimum treatment.

As far as item 3 is concerned, I am not going against recycling. In fact, if every industry on every river recycled everything, our job would be done. But I said all industrial discharges. Well, they are not discharging recycled water. That would be quite apparent.

As far as number 4 is concerned, this effluent requirement for disinfection is the State of Pennsylvania's effluent criteria for sewage treatment plants.

MR. LYON: I don't think I --

MR. WEST: Do you object to that?

MR. LYON: No, I don't at all. In fact, I don't believe I said that number 4 was a change.

MR. RILEY: You did.

MR. LYON: Oh, wait a minute. The disinfection is not a change.

MR. BOARDMAN: Yes, it is.

MR. LYON: Mr. Boardman -- Richard Boardman, who is Director of our Division of Water Quality.

MR. BOARDMAN: The number that was changed is the 10 percent value to be exceeded. It is 400 instead of 1,000, which makes a very significant difference in the standard. That is not the Pennsylvania standard.

MR. STEIN: Would you clarify that? I don't think that is going to be apparent in the record of what your reference is.

MR. BOARDMAN: Page 8 of the report says that the "Adequate disinfection is that which provides an effluent which will contain a concentration not greater than 200 per 100 ml of fecal coliform organisms as a geometric average value" -- and up to that point that is the Pennsylvania standards -- "nor greater than 400 per 100 ml ... of the samples tested." The Pennsylvania standard is 1,000 per 100 ml, and this makes a very significant difference because this 10 percent value -- because we are using a geometric average -- would mean that most of the samples would violate this.

MR. STEIN: Do you want to comment on that?

MR. WEST: Well, if that is in fact an error, I think we can even buy the 1,000. I apologize if that is a misquote.

MR. STEIN: I take it on that point that the technical people can get together, is that correct?

MR. RILEY: I think one point here: The 1,000 which we are speaking of is a stream standard.

MR. WEST: No, we are not; we are talking about an effluent criteria.

MR. STEIN: As far as I know, we have never had a difference with any of the States or any of the other people on the requirements of disinfection. In other words, unless there is a compelling reason, I think we can resolve this question of saying what we mean by "continuous disinfection."

MR. LYON: Well, I don't know whether you want to go into these in detail now, Mr. Stein. But there are a number of changes in here over what has been approved before both by ORSANCO of which EPA was a partner, and the Secretary before. As you well know, when standards are set this triggers a long and complex cycle of abatement processes that grinds to a halt the moment there is a change.

We are not against changes in standards, but you have got to hold still long enough for somebody to do something or we will lose a lot of ground, and that is what we don't want to do.

Now, Mr. Stein, a moment ago, you talked about schedules and the fact that the 1972 deadline will not be met -- that is quite correct, it will not be met.

However, there are schedules available and have been available to EPA. For the purpose of the record, I will give you something that EPA has had and has been given time and time again, and these are the schedules for the municipalities and the industries that have been submitted to ORSANCO. They essentially provide the same kind of compliance that are being provided for the Federal standards as well as the ORSANCO standards. The EPA's representative was at the last ORSANCO meeting when the last set of these was submitted. They were updated. He had no adverse comment regarding Pennsylvania's standards. He did have a comment that indicated he wanted to discuss some of the standards in another State, but there was no criticism at all of ORSANCO -- I am sorry -- of the schedule submitted by Pennsylvania for the industries and municipalities. And I would like permission to introduce these schedules into the record.

They are all available to EPA.

MR. STEIN: Without objection, they will be introduced in the record.

(The documents above referred to follow in their entirety.)

Ohio River Valley
Water Sanitation Commission

TIMETABLES FOR COMPLIANCE WITH ORSANCO STANDARDS 1-70 and 2-70 FOR INDUSTRIES ON THE OHIO RIVER

September 1, 1971

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	**Timetable for Compliance** Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
PENNSYLVANIA											
Liquid Carbonic Co.	1.2	X									
Ampco-Pittsburgh Corp., Wycoff Steel Div.	2.4				F-10	C 2 O-6					
Chemtron Corp., National Cylinder Gas Div.	4.1	X									
United States Steel-Chemical Div.	5.2	X									
Duquesne Light Co., Reed Station	6.0				P-9 F-11	C-6 O-3					
Diamond Shamrock Chemical Co.	6.8	X									
Neville Chemical Co.	6.9	X									
Dixmont State Hospital Water Treatment Plant	7.6				P-10	F-4 C-8	O-9				
Vulcan Materials Co.	7.7	X									
Shenango Co.	8.0	X									
Reichold Chemical Co., Sterling Div.	10.1	X									
Pittsburgh Forging Co.	10.8	X									
Russell Birdsal & Ward Bolt & Nut Co.	11.5	X									
Sewickley Water Treatment Plant	11.8					P-3 F-6 C-11	O-5				
Elwin G. Smith & Co.	14.5	X									
Bethlehem Steel Co.	14.6	X									
Copper Range Co.	14.8	X									

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 2 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
0 - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
PENNSYLVANIA (cont.)											
J. & J. Car Wash	14.8	X									
Marquette Cement Co.	15.0			X	0-9						
Duquesne Light Co., Phillips Station	15.8				P-8 F-10	C-6	0-3				
Jones & Laughlin Steel Corp.	16.8		X			C-3	0-10				
						0-4					
				X		0-2					
H. H. Robertson Co.	16.9	X									
Armco Steel Corp.	18.0	X									
Pennsylvania Railroad	23.0				P-8 F-9	C-2 0-5					
Ampco-Pittsburgh, Colono Division	23.9	X									
Freedom Valvoline Oil Works	24.0	X									
Pittsburgh Tube Co.	24.2				P-7 C-11 F-8	0-4					
Pittsburgh Tool Steel & Wire Co.	24.3		X		C-10	0-3					
St. Joe Minerals Corp.	24.4					P-1 F-2 C-5	0-2				
					P-9 F-10 C-12	0-3					

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 3 of 14

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
PENNSYLVANIA (cont.)											
Sinclair Koppers Co. (1 discharge)	24.4	X									
(2 discharges)					P-4 F-9 C-11	O-10					
Vasco Colonial	24.4	X									
Petroleum Solvents	28.7	X									
Shippingport Sand & Gravel Co.	33.8	X									
Duquesne Light Co., Shippingport	34.5				P-10 F-12	C-9	O-3				
Midland Water Treatment Plant	36.3					P-6	F-3 C-7	O-5			
Crucible Inc., (3 discharges)	36.5	X									
(1 discharge)			X			C-5 O-5					
(1 discharge)					F-7 C-8	O-8					
Superior Drawn Steel	36.6	X									
PENNSYLVANIA-OHIO-WEST VIRGINIA STATE LINE (mile 40.0)											
OHIO											
East Liverpool Water Treatment Plant	43.5					F-1 C-4	O-1				
Ohio Edison, Sammis Plant	55.0	X									
Ohio Edison, Toronto Plant	57.5	X									
Toronto Paper Board Co. (to Toronto Municipal System)	59.1						P-1		F-7		O-1

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 4 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
OHIO (cont.)											
Toronto Water Treatment Plant	59.9				P-11	F-5 C-8	O-5				
Titanium Metals Corp. of America	60.0					F-6 C-12					
Steubenville Water Treatment Plant	68.0	X									
National Steel Corp., Weirton Steel Div.	68.6	X									
Wheeling-Pittsburgh Steel Corp., North Plant, blast furnace	68.8	X									
Wheeling-Pittsburgh North Plant, acid iron	68.8	X									
Wheeling-Pittsburgh North Plant, scale	68.8			X		O-12					
Wheeling-Pittsburgh Steel Corp. South Plant blast furnace	71.0					P-3 F-8 C-10		O-3			
Wheeling-Pittsburgh South plant, scale	71.0			X		O-12					
Wheeling-Pittsburgh Steel Corp., Mingo Junction	71.0			X	O-8						
Penn Central Co.	71.0	X									
Ohio Power Co., Cardinal Plant	74.4	X									
Ohio Power Co., Tidd Plant	75.0	X									
Wheeling-Pittsburgh Steel Corp., Acid iron	83.7	X									
Wheeling-Pittsburgh Steel Corp., galvanizing	88.8			X	O-7						
Ohio Edison Co., Burger Plant	97.6	X									
North American Coal Corp.	111.2	X									

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 5 of 14

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
OHIO (Cont.)											
Ormet Corp.	117.0	X									
Union Carbide Corp., Ferroalloys Div.	178.0	X									
Union Carbide Corp., Chem. & Plastic Plant	178.0	X									
Shell Chemical Co.	187.0	X									
Excelsior Salt Works	250.3	X									
Pomeroy Water Treatment Plant	250.4				(to ground-water source)	O-12					
Ohio Valley Electric Corp., Kyger Creek	260.2	X									
WEST VIRGINIA											
Chester Water Treatment Plant	43.3										
Harker Pottery	43.3										
Taylor Smith & Taylor	43.3										
Globe Refractories	45.0										
Joseph Dixon Crucible Co.	45.0	X									
Quaker State Oil Refining Co.	45.0					(New plant under construction)					
Homer Laughlin China Co.	45.1										
Weirton Steel Co. (A, B, C, & E)	62.2										
Weirton Water Treatment Plant	63.0										
Wheeling Pittsburgh Steel Corp., sheet metal E.Steubenville	68.8										
Follansbee Steel Corp.	70.4	X									

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 6 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
WEST VIRGINIA (cont.)											
Hooverson Heights Water Treatment Plant	70.6	X									
Koppers Co.	71.0				C-7		0-9				
Weirton Ice and Coal Supply Co.	72.6	X									
S. George Co.	73.8	X									
Banner Fiberboard Co.	74.4										
Wellsburg Water Treatment Plant	74.4										
Wheeling-Pittsburgh Steel Co., Beechbottom	74.7										
American Electric Power Service Corp.	75.0										
Warwood Tool Co.	86.4										
Wheeling-Pittsburgh Steel Corp., Benwood	89.0										
Wheeling Water Treatment Plant	90.5										
Wheeling Machine Products Co.	91.0	X									
Valley Camp Coal Co. No. 1	92.0	X									
No. 3		X									
Triadelphia-mine drainage					0-9						
Consolidation Coal Co., Shoemaker Mine	94.3	X									
Ireland Mile	101.9	X									
McElroy Mine		X									
Valley Camp Coal Co., Alexander Mine	101.3			X	0-9						
Triangle Cable & Conduit Co.	101.5										

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 7 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	**Now complying**	**Final plans prior to 6/30/71**	**Construct. start prior to 6/30/71**	1971	1972	1973	1974	1975	1976	1977
WEST VIRGINIA (cont.)											
Ohio Power Co., Mitchell Generating Plant	101.9	X									
Allied Chemical Corp., Specialties Chem. Div.	105.0										
Allied Chemical Corp., Industrial Chem. Div.	105.0	X									
Ohio Power Co., Kammer Plant	111.1										
Mobay Chemical Co.	119.0								O-7		
PPG Industries	119.7				C-12	(Mercury discharge acceptable)					
Sistersville Water Treatment Plant	137.6										
Union Carbide Corp., Sistersville - Phase 1	145.0	X									
Phase 2					F-12	C-3 O-9					
Phase 3						F-12	O-9				
Quaker State Oil Refining	155.0					C-12					
Belmont Water Treatment Plant	158.0										
Monongahela Power Co.	160.5										
American Cyanamid Co.	161.0					O-11					
Cabot Corp.	165.2	X									
Parkersburg Water Treatment Plant	184.6										
Burdett Oxygen Co. of Cleveland, Inc.	185.5										
E. I. duPont deNemours & Co.	190.3					C-6 O-9					
Borg Warner Corp.	191.6	X			P-5		F-12				

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 8 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
WEST VIRGINIA (cont.)											
Amax Special Metals, Inc.	192.6					0-7					
Kaiser Aluminum & Chemical Corp.	222.0					F-5 0-10	0-4				
Central Operating Co., Phillips Sporn Plant	241.6										
Foote Mineral Co.	241.6										
Pantasote Co. of New York, Inc.	260.0	X									
Stauffer Chemical Co.	270.0										
Goodyear Tire and Rubber Co.	281.0	X									
Huntington Water Treatment Plant	308.3										
WEST VIRGINIA-KENTUCKY STATE LINE (mile 317.1)											
OHIO											
Allied Chemical Corp., Plastics Div.	324.0	X									
Dayton Malleable Iron Co., Ironton Div.	327.2			X	P-5 0-7						
Ironton Water Treatment Plant	327.2				F-12	C-4 0-12					
Dow Chemical Co.	330.0	X									
U. S. Steel Corp., Chemical Div.	332.0	X									
Portsmouth Water Treatment Plant	350.7					F-1 C-4	0-1				

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 9 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
OHIO											
Empire Detroit Steel Corp., acid iron	351.0				P-9	F-6	C-12	O-7			
blast furnace			X		O-12						
coke plant		X									
mill scale					P-9	F-3	O-12				
Dayton Power and Light Co., Stuart Station	405.7	X									
Cinti. Gas & Electric, Beckjord Station	453.0	X									
Cincinnati Water Treatment Plant	462.8				F-12	C-3 O-12					
Cinti. Gas & Electric Co., West End Station	471.4	X									
Monsanto Co.	484.0	X									
Koppers Co., Wood preserving Div.	486.3	X									
Chevron Asphalt	489.0	X									
Cinti. Gas & Electric Co., Miami Fort Station	490.3	X									
KENTUCKY											
Allied Chemical Corp.	320.3				P-10	F-2 C-3 O-10					
Armco Steel Corp., blast furnace	324.6			X	C-5	O-4					
acid			X		C-8		O-2				
all other						P-12	F-12	C-1	O-7		
Chesapeake & Ohio Railway Co.	328.9				P-9 F-11		C-3	O-1			

Timetable for Compliance

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Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
KENTUCKY (cont.)											
E. I. duPont de Nemours & Co.	333.2					P-4 F-10	C-1 O-11				
Hooker Chemical Co.	351.0				P-9 F-11 C-12	O-6					
Chesapeake & Ohio Railway Co.	459.4				P-9	F-6 C-12	O-10				
INDIANA											
Schenley Distillers	495.0				F-8	C-3	O-3				
Seagram & Sons, Inc.	495.0				F-8	C-3	O-3				
Indiana-Michigan Electric Corp.	495.5	X									
Rising Sun Packing Co.	507.0	X									
Public Service Co.	531.5	X									
Indiana Kentucky Electric Co.	558.5				P-12	F-6 C-8		O-8			
U.S.S. Agri-Chemicals, Inc.	604.0	X									
Colgate Palmolive Company	605.0				P-10	F-2 C-4 O-12					
George Moser Leather Co.	606.4	X									
Hooker Chemical Corp.	607.0				P-10	F-2 C-4 O-12					

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
INDIANA (cont.)											
Indiana Farm Bureau Co-op Ass'n., Inc.	607.0				P-10	F-2 C-4 O-12					
Jeffboat Co.	607.0	X									
Jarvis Refining Co.	730.1	X									
Southern Indiana Gas & Electric Co.	777.0	X									
Aluminum Co. of America	792.5				P-12	F-3 C-5 O-12					
Southern Indiana Gas & Electric Co.	777.0	X									
L. & N. Railroad Co., Howell Yards	794.0			X	O-12						
The General Electric Co.	829.0				C-7	O-12					
Indiana Farm Bureau Fertilizer	829.0				P-10	F-2 C-4 O-12					
KENTUCKY											
Dow Corning	540.0	X									
Metal and Thermit Corp.	544.5					P-4 F-9	C-1	O-3			
Ashland Oil & Refining Co., Louisville Refining Co., Div.	611.8	#									

To Louisville MSD on or before 7/1/74

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	**Timetable for Compliance** Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
KENTUCKY (cont.)											
Meade Container Co.	611.9	X									
E. I. duPont de Nemours & Co.	613.2	#									
Rohm and Haas Co.	613.3	#									
American Synthetic Corp.	613.6			X	O-8						
Airco Alloys and Carbide	613.7	#									
Stauffer Chemical Corp.	614.9					P-2 F-10	C-3	O-6			
Louisville Gas & Electric Co.	616.6				P-12	F-10	C-5	O-5			
Kosmos Portland Cement Co.	627.0	X									
Olin Corp.	642.0				P-12	F-10	C-5	O-5			
West Cor	724.2					P-7	F-1 C-5	O-7			
Western Kraft	724.2					P-7	F-1 C-5	O-7			
Big Rivers RECC	728.3					P-3	F-3 C-1		O-12		
Harvey Aluminum	736.7				P-8	F-10	C-3 O-9				
Green River Steel Co.	753.0					P-3 F-12	C-3 O-12				
Owensboro Municipal Utilities Co., Elmer Smith Plant, Unit #1	755.3	##									

To Louisville MSD on or before 7/1/74

Yes, but due to EPA a time schedule for off stream cooling facilities will be available 2/1/72

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
KENTUCKY (cont.)											
Fleischmann Distilling Corp.	757.5					P-5 F-12	C-1 0-12				
Medley Distilling Co,	757.6					P-3 F-12	C-2 0-12				
W. R. Grace & Co.	760.0				P-9	F-2 C-5 0-9					
Glenmore Distilleries Co.	755.2					P-2 F-11	C-1 0-12				
Henderson Electric Power Co.	806.0				P-9	F-2 C-6	0-3				
Gulf Oil Co.	807.3				P-10	F-2 C-5 0-10					
Western Kentucky Coal Co.	843.0	X									
INDIANA-ILLINOIS STATE LINE (mile 848.0)											
ILLINOIS											
Ohio Shell Co.	944.0					F-6 C-12	0-12				
Missouri-Portland Cement Co.	951.0	X									
Minerva Oil Co.	881.1	X									
Allied Chemical Corp.	945.0	X									

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER INDUSTRIES - September 1, 1971 Page 14 of 14

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	**Mile Point**	**Now complying**	**Final plans prior to 6/30/71**	**Construct. start prior to 6/30/71**	1971	1972	1973	1974	1975	1976	1977
ILLINOIS (cont.)											
Electric Energy, Inc.	951.2	X									
Southern Clay, Inc.	964.5					F-6 C-12	0-12				
Rosiclare, Ltd.	891.0	X									
Ozark Mahoning	891.7	X									
Island Creek Coal Co.	851.8				P-10	F-1 C-4 0-12					
Pittsburgh & Midway	873.0	X									
Atomic Energy Commission - solids	946.0				P-5 F-5 C-5 0-9						
Atomic Energy Commission - oil	946.0				P-10 F-12 C-12	0-6					
Shawnee Steam Plant	946.0					P-1 F-1 C-12		0-6			

Ohio River Va[illegible]ey
Water Sanitat[illegible]n Commission

Page 1 of 9

TIMETABLES FOR COMPLIANCE WITH ORSANCO STANDARDS 1-70 and 2-70
FOR
MUNICIPALITIES ON THE OHIO RIVER

September 1, 1971

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
PENNSYLVANIA											
Allegheny County Sanitary Authority	3.1			X			0-2				
Robinson Township Supervisors	4.0	X									
Dixmont State Hospital	7.6				P-10	F-4 C-8	0-9				
Coraopolis	10.2				P-12	F-3	C-5	0-3			
Sewickley	11.8	X									
Leetsdale	14.8		X			C-9	0-12				
Crescent South Heights Municipal Authority	15.7	X					—				
Ambridge	15.9					0-10					
Aliquippa	20.0		X			C-10	0-12				
Baden	20.3	X									
Conway	21.6										
Rochester Area Sewer Authority	24.0		X			C-10	0-12				
Monaca	24.4		X		C-11	0-11					
Beaver	26.2	X									
St. Joe Minerals Corp.	28.5			X	0-12						
Sinclair Koppers	29.7	X									
Midland	36.3		X			C-10	0-12				

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 2 of 9

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	Timetable for Compliance Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
PENNSYLVANIA-OHIO-WEST VIRGINIA STATE LINE (mile 40.0)											
OHIO											
East Liverpool	43.5						P-1		F-7		0-1
Wellsville	47.6						P-1		F-7		0-1
Stratton	54.9						P-1		F-7		0-1
Toronto	59.1						P-1		F-7		0-1
Steubenville	68.0						P-1		F-7		0-1
Mingo Junction	71.0						P-1		F-7		0-1
Brilliant	74.4						P-1		F-7		0-1
Rayland	81.6						P-1		F-7		0-1
Tiltonsville	83.0						P-1		F-7		0-1
Yorkville	83.7						P-1		F-7		0-1
Belmont County Sewer Authority No. 1	94.5						P-1		F-7		0-1
Shadyside	97.6						P-1		F-7		0-1
Powhatan Point	109.8						P-1		F-7		0-1
New Matamoras	142.0	X									
Marietta	172.0						P-1		F-7		0-1
Belpre	183.9						P-1		F-7		0-1
Pomeroy	250.4	X									
Middleport	252.1	X									
Gallipolis	269.7						P-1		F-7		0-1

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER MUNICIPALITIES - September 1, 1971 Page 3 of 9

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
OHIO (cont.)											
Procterville	304.6						P-1		F-7		
Chesapeake	309.2						P-1		F-7		0-1
South Point	317.0						P-1		F-7		0-1
WEST VIRGINIA											
Chester	43.3								0-1		
Newell	45.0								0-1		
New Cumberland	56.7								0-1		
Weirton	63.0								0-1		
Follansbee	70.6	X									
Ohio County Public Service District	74.0								0-1		
Wellsburg	74.4		X		0-1						
Power	75.0								0-1		
Beechbottom	78.0				0-1						
Wheeling	90.5								0-1		
Benwood	94.3	X									
McMechen	96.2								0-1		
Glen Dale	99.4								0-1		
Moundsville	101.9								0-1		
New Martinsville	128.2								0-1		

Compliance with ORSANCO STANDARDS 1-70 and 2-70 - OHIO RIVER MUNICIPALITIES - September 1, 1971 Page 4 of 9

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
WEST VIRGINIA (cont.)											
Paden City	133.2								0-1		
Sistersville	137.6								0-1		
St. Marys	155.0	X									
The Colin Anderson Hospital	155.2				C-7						
Belmont	158.0				0-1						
Williamstown	172.0								0-1		
Vienna	180.4								0-1		
Parkersburg	184.6								0-1		
Ravenswood	220.2			X	0-10						
New Haven	245.5								0-1		
Mason	250.1	X									
Point Pleasant	264.3								0-1		
Huntington	308.3				P-8				0-1		
Ceredo	314.8								0-1		
Kenova	315.7								0-1		

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 5 of 9

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
WEST VIRGINIA-KENTUCKY STATE LINE (317..)											
OHIO											
Ironton	327.2						P-1		F-7		0-1
Union Sanitary District No. 1	327.2						P-1		F-7		0-1
New Boston	351.8						P-1		F-7		0-1
Portsmouth	356.0				0-12	(P-6-68; F-12-69)					
Aberdeen	400.0	X									
Ripley	417.1						P-1		F-7		0-1
New Richmond	449.9		X		0-12						
Metropolitan Sewer District of Greater Cinti.	470.2		X	X	F-7		0-11				
Cleves	486.0		X		0-12						
KENTUCKY											
Ashland	322.5				P-2		F-1 C-4	0-9			
Flatwoods	327.8				P-2		F-1 C-5	0-9			
Worthington	328.9	X									
Wurtland Water District	330.0	X									
Greenup	336.4	X									
South Shore	353.8	X									

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 6 of 9

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
KENTUCKY (cont.)											
Vanceburg	378.4	X									
Maysville	411.8				P-9	F-7	C-4	0-11			
Augusta	427.7				P-6 F-10	C-4	0-4				
Campbell-Kenton Co. Sanitation District	474.0				P-7		F-6 C-8		0-7		
OHIO-INDIANA STATE LINE (mile 491.1)											
INDIANA											
Lawrenceburg (Greendale)	493.0					F-6 C-12	0-12				
Aurora	496.5					F-6 C-12	0-12				
Rising Sun	506.0					F-6 C-12	0-12				
Vevay	537.0	X									
Madison	558.5				C-3	0-12					
Madison State Hospital	558.5					F-6 C-12	0-12				
Hanover	559.0	X									
Oak Park Conservancy District	602.0		X			C-12	0-12				
Jeffersonville	604.0			X		0-1					
Clarksville	605.2	X									
Charlestown	607.0					F-6 C-12	0-12				

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 7 of 9

Timetable for Compliance

Numbers in columns indicate month for:
P - submission of preliminary plans
F - submission of final plans
C - start of construction
O - start of operation

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	1971	1972	1973	1974	1975	1976	1977
INDIANA (cont.)											
New Albany	609.0		X		C-3	0-12					
Leavenworth	664.0										
Cannelton	724.0					F-6 C-12	0-12				
Tell City	727.0					F-6 C-12	0-12				
Troy	731.0							F-6 C-12	0-12		
Grandview	742.1		X							C-12	0-12
Rockport	746.0					F-6 C-12	0-12				
Newburgh	778.0					F-6 C-12	0-12				
Evansville	792.5		X		C-3	0-12	Bid received (to be rebid)				
Mount Vernon	829.0		X			C-12	0-12				
KENTUCKY											
Louisville	612.0				F-10	C-1		0-7			
Operating Board of the Belle of Louisville	603.6				P-10 F-12	C-2 0-4					
Shively	615.4				F-7	C-1		0-7			
West Point	631.0				P-8	F-3 C-6	0-12				
Brandenburg	645.8				P-10	F-9	C-2	0-5			

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 8 of 9

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	**Timetable for Compliance** Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
KENTUCKY (cont.)											
Cloverport	711.8				P-8	F-3 C-6	0-12				
Owensboro	758.1				P-5	F-5 C-7		0-3			
Henderson	806.0				P-4 F-8 C-11	0-5					
Uniontown	842.5				P-4 F-8	C-1 0-12					
INDIANA-ILLINOIS STATE LINE (mile 848.0)											
ILLINOIS											
Elizabethtown	889.0					F-6 C-12	0-12				
Rosiclare	891.0					F-6 C-12	0-12				
Golconda Sanitary District Golconda	903.0					F-12	C-6 0-12				
Golconda Job Corps	903.0	X									
Brookport	937.5					F-12	C-6 0-12				
Ft. Massac State Park	943.0					F-6 C-12	0-12				
Metropolis	944.0					F-6 C-12	0-12				

Compliance with ORSANCO STANDARDS 1-70 and 2-70 -OHIO RIVER MUNICIPALITIES- September 1, 1971 Page 9 of 9

Name	Mile Point	Now complying	Final plans prior to 6/30/71	Construct. start prior to 6/30/71	**Timetable for Compliance** Numbers in columns indicate month for: P - submission of preliminary plans F - submission of final plans C - start of construction O - start of operation						
					1971	1972	1973	1974	1975	1976	1977
ILLINOIS											
Joppa Sanitary District Joppa	951.0					F-6 C-12	O-12				
Lock and Dam 52	974.2	X									
Cairo	979.0					F-6 C-12	O-12				
KENTUCKY											
Paducah	936.0					P-1 F-9 C-12		O-7			

MR. STEIN: Let's go off the record for a second.

(Discussion off the record.)

MR. STEIN: Let's go back on the record.

MR. LYON: Okay, now let's go on to page 12 of -- your report, Mr. West, talks about navigation, both on -- well, on page 12 and other parts of the report.

MR. WEST: Yes.

MR. LYON: But nowhere in your report do you talk about the adverse effect that navigation has on the water quality regime of the stream. Is there any special reason why you don't?

MR. WEST: Are you talking about the effects of the tows, is that what you are talking about? Or are you talking about the effects of canalizing the streams?

MR. LYON: Canalizing the dams, the loss of dissolved oxygen, and so forth.

MR. WEST: Well, there is no doubt about it that with the streams as they are, with the slow-moving, canalized streams that we don't get the reoxygenation rate that we would normally expect in a free-moving stream.

MR. LYON: Don't you think that should be mentioned in a report on the pollution and water quality of the Ohio?

MR. WEST: Well, I would probably mention that with the same fact that if we had a free-moving stream there, and we didn't have the flow augmentation from these reservoirs that have been built by the Corps of Engineers, then I think our design criteria would be more restrictive than we seek today.

MR. LYON: Do you think the flow augmentation overcomes the loss due to the navigation structures?

MR. WEST: I think this would be a very hard thing to evaluate because, after all, how long has that stream been canalized? It has been like that since probably in the late 1800's, and I don't think we have enough historical data to show either way what the adverse effects would be or whether there are good effects.

MR. LYON: Well, I suggest that you read the report on the Markland Dam, Mr. West. Because it will tell you -- and it was done by none other than EPA and its predecessors -- and it tells you that it robs the river of approximately 120,000 pounds of oxygen-assimilative capacity, which is a lot more than the reduction in the 60,000 pounds that ALCOSAN is going to accomplish, which will cost us about $40 to $50 million. So I would say that these navigation structures are significant. I am not trying to say that we don't need navigation; we have got to have it. But this is a significant factor when you talk about water pollution in the Ohio, and any report on the water quality of the Ohio should speak to that subject.

MR. WEST: As far as the report on the Markland Dam, I have read all three of them -- there were three -- and the only thing I can say about that is that, of course, they are using a design criteria I think for 20,000 cfs. at Cincinnati. What I am saying is that without the flow augmentation that we have today, you wouldn't have 20,000 cfs. in Cincinnati in low-flow season.

MR. LYON: That is very true, but does that overcome the loss due to Markland Dam?

MR. WEST: Well, I don't think that -- like I say, we have historical data. You pointed out the Markland Dam. Now, they use -- their historical data is 1954. But what they are talking about before -- there was a dam there before. It is not a situation where they had a free-moving stream and then they constructed a dam and the situation changed overnight. All they did, they created a dam that had a deeper cove depth.

MR. LYON: What do you think that does to the oxygen assimilation capacity?

MR. WEST: Well, there is no doubt about it with these deep streams, slow-moving streams, that the reoxygenation rate is decreased.

MR. LYON: Don't you think that is an important factor?

MR. WEST: Yes. But I would also like to point out that a recent story -- and I am sorry but I don't have the figures here -- about some work that the Corps of Engineers has been doing in the Markland Dam area as far as how to operate a dam to get the maximum reoxygenation rate from the dam. I wish I had the article here; I would like to submit it.

MR. LYON: Has EPA ever recommended that the Corps do something along that line?

MR. WEST: Yes. In fact, EPA has even requested the Corps, when hydroelectric facilities are installed on dams, that they try to put into the contract that bleeder lines for air be installed to increase the oxygen going into the water as it passes through the turbines.

MR. LYON: Well, we think this is an important item in some sense. We would strongly urge that EPA work closely with the Corps to try to recoup some of that loss of assimilative capacity.

Let's move on to page 17 where you say, Mr. West, that the Pennsylvania Fish Commission does not stock either the Ohio or the Monongahela Rivers although many tributary streams in the area are stocked.

What is the point of saying that?

MR. WEST: Well, I am just pointing out that the Pennsylvania Fish Commission in all their wisdom do not want to waste fish putting them into a river where they can't survive.

MR. LYON: Well now, do you happen to know what the policy is of the Pennsylvania Fish Commission regarding the stocking of large streams?

MR. WEST: No, I don't know their policy. All I did, I contacted the Commission and asked them what streams they stock and why didn't they stock the Ohio River, and that was the answer I got.

MR. STEIN: What was the answer of why they didn't stock it?

MR. WEST: The answer was that there is no sense stocking fish in the Ohio River when they can't survive there — excuse me -- the type of fish that they stock. They don't stock carp or catfish.

MR. LYON: What kind of fish do they stock, Mr. West?

MR. WEST: Sport fishes, I assume.

MR. LYON: Can you name the kind they would stock mostly?

MR. WEST: No, I can't name --

MR. LYON: Would it be a surprise to you if I said trout?

MR. WEST: No, not really.

MR. LYON: Would you expect them to stock trout in the Ohio?

MR. WEST: Not at the temperature that the Ohio River gets to right now.

MR. LYON: That is right.

In other words, the Fish Commission doesn't usually stock large streams like the Ohio whether they are polluted, as the Ohio is, or whether they are clean, because they don't stock the Susquehanna usually either. They put some muskies into it, but they don't usually stock these large streams.

Do you happen to know that the Fish Commission does stock the Beaver River? Did you ask them about the Beaver?

MR. WEST: No, sir, I didn't.

MR. LYON: What would you say about the water quality in the Beaver as compared to the Ohio?

MR. WEST: This is all offhand right now.

MR. STEIN: Where is the Beaver River?

MR. WEST: The Beaver River is about 25 miles downstream from Pittsburgh.

MR. STEIN: Is that the area of the conference?

MR. LYON: Yes, it is.

MR. WEST: It is one of the tributaries into the conference area. The Beaver River --

MR. LYON: Mr. Stein, it is on the map over there.

MR. WEST: Right here. (Laughter)

MR. STEIN: Your eyes are better than mine.

MR. WEST: I don't feel that I am really prepared to discuss every single paramater as far as the concentrations of selected --

MR. LYON: Just generally, would you say the Beaver is more polluted or less polluted than the Ohio?

MR. WEST: When you say "polluted" -- I like to think in terms of selected items. For instance, if I make a statement here that I think the Beaver River is less polluted than the Ohio River, and then anybody just goes and looks at the coliform levels in the Beaver River, they are liable to call me down on it. I would hate to make general statements of that nature.

MR. LYON: Well, let's talk in terms of the point of view of the fish. They don't seem to mind the coliform so much.

MR. WEST: Now, if I remember correctly, there was not a D.O. problem in the Lower Beaver River, and I --

MR. LYON: Well, I'll ask --

MR. WEST: I state that with a --

MR. STEIN: By the way, can you provide the information?

MR. LYON: We will provide the information that will show that the Beaver River generally, as far as fish are concerned, is more polluted than the Ohio, and that the Fish Commission does on occasion stock the Beaver River.

MR. STEIN: All right.

Are there any other comments or questions?

MR. LYON: Yes.

I would comment, Mr. Chairman, that some of the information on Table 3 and 4 on pages 31 and 32 is incorrect. That is not necessarily anybody's fault. Water pollution is a dynamic thing, and things change. Some of this is quite old information. Either EPA or we or somebody should correct that information in that report. It is not correct.

MR. STEIN: Mr. West, do you want to comment on that? Are you agreeable to that suggestion?

MR. WEST: I realized when I first started to write this report that it would be necessary to update it before printing. We try to do that. If there are errors in there I think they should be corrected. If one of these plants or something has increased their facilities, I think it should be corrected.

MR. LYON: Now let's go to Table 5.

MR. STEIN: Wait. Would there be

any difficulty in you getting together with the technical staff of Pennsylvania so that agreed-upon tables can be inserted in the record for the purpose of the record?

MR. WEST: That is fine.

MR. STEIN: All right. Thank you.

MR. LYON: We are agreeable to that as long as most of the work, Mr. Chairman, is done by EPA and not by us. We will have some comment later about the problem we have had in giving data to EPA.

MR. STEIN: All right. As far as I can see, that is EPA's role in life to do most of the work. We will be glad to do it.

MR. LYON: All right. Let's go to Table 5. One of the headings in Table 5, Mr. West, is called "Critical Constituents." Could you give us a description of two things: 1) how did you get this information, and 2) what does it mean to you?

MR. WEST: The information was obtained from Region V, Department of Environmental Resources in the State of Pennsylvania. We visited their office. We went through the records. These figures are almost totally: 1) they are effluent data supplied by the companies in their normal submissions to the Department of Environmental Resources; or 2) in some cases, the State will take samples whenever an inspector goes to a plant and, of course, I would say a select few of the data came from there.

MR. HORTON: Could I ask a question on that same table, Mr. Chairman?

MR. STEIN: Yes, go right ahead, Mr. Horton.

MR. HORTON: Was any effort made, Mr. West, to relate these pound figures that you have listed in that table to resulting stream conditions? For example, I looked on the table, and I see 480 pounds of cyanide. Well, that sounds like a lot. But then when you consider that design flow or critical flow, 10-year flow is 6,600, it works out to be a concentration of .01 which is only half of what your stream criterion is. The point I am getting at is just to list these pounds down is really meaningless, and I think Mr. Lyon asked the question what do these figures mean to you.

MR. LYON: That is right.

MR. WEST: That is my question?

MR. STEIN: Yes.

MR. WEST: The reason for listing them -- and I tried to point out in the text -- that these are there to show the minimum amount.

Now I will -- granted we can show that our pollution surveillance station at the state line exceeds West Virginia's criterion of .025 mg/l of cyanides many, many times in a winter. We have detected concentrations up to 80 parts per billion in that stream.

Now granted each one of these by itself might not exceed the standard. But we don't have a case of one point source or two or three, we have many, many industries in the area, and in total they are presently today exceeding standards.

MR. HORTON: Well, of course, the question comes to the frequency with which they are exceeding.

MR. WEST: I would like to say something about that. As far as phenols and cyanides, I would say that most of the time the State line stations violated in phenols and cyanides in winter months when the biological degradation is slow in the river.

MR. LYON: All right now.

MR. STEIN: Do you have any more?

MR. HORTON: Not on that table, no.

MR. LYON: Well, we can, if you wish, Mr. Chairman, go through each of these -- it would take a lot of time. Again I would suggest that the staff correct this information. It is grossly incorrect. Some of it simply because it is outdated; other we simply don't know where the information came from. It is almost incredible the inaccuracy of some of the information in that table.

Just to cite one example, let's go to page -- oh, it is on Table 6, which is somewhat the same kind of a table, showing industrial discharges. Here you show on page 36 920,000 pounds of granulated slag being discharged from the U.S. Steel Works at Homestead.

Could you give us a description, Mr. West, as to what the Monongahela would look like if that much granulated slag was discharged from the Homestead Works?

MR. WEST: Mr. Lyon, I could do you an even better one than that. I will furnish you with maps of the Corps of Engineers that show that that shoreline is not a natural shoreline. That shoreline from -- from that particular discharge downstream for at least a quarter of a mile up to 75 feet out into the body of water, it is nothing but granulated slag discharged by the U.S. Steel Corporation from a slag granulator.

MR. LYON: When was that discharge found?

MR. WEST: The first time I think we sampled that thing was in, I would say, March of this year.

MR. LYON: And it was discharging 920,000 pounds per day?

MR. WEST: What this is: this is an average figure. We sampled this thing several times. I would say it is an instantaneous rate. In other words, when we went up and took a sample, and using the flow coming out, I would say at an instantaneous rate it may at times have exceeded 1-1/2 million pounds per day.

MR. LYON: Well, would you give us a description of what this granulated slag looks like and what it does when it gets in the water?

MR. WEST: If somebody would be so kind as to go in the back there and bring up that sample, please -- may we submit this for the record?

MR. STEIN: We may take it as an exhibit. Let me look at it. If it doesn't smell, we might take it. (Laughter)

I should indicate, while this is coming up, we intend to go until about 12:00 o'clock.

MR. WEST: This is granulated slag from a blast furnace and what is usually done, the slag coming out of a blast furnace is high-pressure-water sprayed, and it falls into an open water pit, which makes the granulated slag. It is usually used for things like road beds. But in this particular case it is used to dam the river.

MR. LYON: Does it always sink to the bottom like that, or does it float sometimes?

MR. WEST: You would be surprised. I have seen the same stuff down here at the point. I imagine it has to do with the chemical composition of what is coming out at the time, but I would say most of it settles. It is a settleable solid, although some of it floats, and we have detected it all of the way down to Neville Island.

MR. LYON: Well, let me say this: I am not trying to say that U.S. Steel doesn't have some pollution problems; they do. But if they discharge that much granulated slag every day, we would very quickly lose the ability to navigate on the Monongahela River.

MR. STEIN: Do you know how much they are putting out each day?

MR. LYON: I think we will be happy to provide you with that.

MR. STEIN: Maybe U.S. Steel can provide that for us. They have always been helpful. (Laughter)

MR. LYON: I am merely trying to give you an example of the kind of problem we have with this data, Mr. Stein. I could give others. I think we ought to get the right data.

MR. STEIN: Go on.

MR. WEST: One thing I would like to say. We try to be as fair as possible when we are putting out data like this. This is not just one sample. This is, I think, eight samples taken over 4 days, and it is an average value.

Blast furnaces do not have slag runoff continuously;

as you might well expect. Blast furnaces will cast maybe once every 2 or 3 hours, so it is a periodic discharge. But I know, if you would request it, you can go to the Corps of Engineers, and the Corps of Engineers have correctly identified that bank of the Monongahela River as a slag bank. It is on their maps.

MR. LYON: I can't argue that point at all. We are talking about the discharge not the bank. And we would be very happy to go out there with you and collect a joint sample and you analyze it in your lab and we analyze it in our lab --

MR. STEIN: We can save some time and money, I think if -- let's invite U.S. Steel to tell us how much they are putting out in granulated slag at the Homestead Works and then we can have it.

MR. WEST: One thing I might say in defense of the U.S. Steel Corporation is that, of course, a lot of this is used for roads, and these samples were taken in the winter when road construction is not really booming. So maybe during highway construction months they might take more out and discharge less.

MR. LYON: If they are discharging 450 tons of this stuff a day, the Ohio River would -- the Monongahela River would be a road. (Laugher) So let's get the data correct.

MR. WEST: I don't believe that for a minute.

MR. STEIN: All right, go on. The difficulty is, in using something as prolonged an example as this, we are just going to have to ask the company if they want to put anything in.

MR. LYON: Fine. I think we ought to get that data correct.

MR. WEST: One thing I want to say: You are saying that the data is incorrect. But I am saying that these are actual measurements that were made at the plant. Now, I can't see where you can say they are incorrect. Now, we can say on March 19 or 21, or whatever the particular date was, this in fact was the discharge. Now, we might go out there tomorrow, and there may be no suspended solids.

MR. LYON: I know. But the problem, Mr. West, is that you can go there -- and we have done the same thing -- and you can collect samples at a time when there is a violation occurring, which may not be the usual condition. All of us know that when we go down this river, or any other river for that matter and take samples we are going to find violations. Our records show that for any hundred discharges we sample we find about 20 percent of them in violation.

The question is whether the violation is something that is going on all of the time or whether it happens to be going on for a very short time. We have a feeling that some of this data was taken when there was an acute pollution incident, and we are against this, and we take corrective action when we find these.

One thing you don't mention at all in your report — and it is one of the many sins of omission from this report -- is the fact that Pennsylvania has ordered all of these industries to develop pollution-incident prevention plans that require them to show how they are going to prevent this kind of thing, and that the insurance companies in Pennsylvania have gone further and have even said they won't even issue liability insurance to these companies any more unless they have an approved Pennsylvania pollution-incident prevention plan. But that kind of information seems, for some reason, to be not included in your report.

MR. STEIN: I didn't get your point. I really don't understand this.

Did you say that we have to discount this business because our investigators were out there when there was a pollution violation, and usually there isn't a pollution violation; therefore, we have to check what is usual?

MR. LYON: No.

MR. STEIN: Because I am going to tell that to the cop the next time he stops me from speeding. I am going to tell him usually I don't speed.

MR. LYON: No, that is not the point I was trying to make. The point I am trying to make this, that in this kind of data you should indicate whether it was an acute violation that lasted for a day or for 2 hours, or whether this is the common condition that exists at that plant.

After looking at the data, it appears to us that either some of it is obsolete, and we think that should be corrected, or some of it was corrected on what one might call a fishing expedition to make these people look as bad as possible.

MR. WEST: I wouldn't call it a fishing expedition.

To get away from this fact that we are taking one sample and running it, these samples in the Monongahela River were taken over a period of 3 or 4 days. They are average values, and I think this is the best we can do. I don't believe, in all fairness, that we can camp somebody out at this U.S. Steel outfall or any other outfall and come back and say, "Well, you made it 90 percent of the time this time."

MR. LYON: Are you saying that all of the data in

Tables 5 and 6 was collected by you from discharges in the river?

MR. WEST: I explained the data in Table 5 -- I think it is on the record that I explained where that came from. Table 6 are actual effluent sampling samples that we collected this last spring.

MR. LYON: Okay.

MR. STEIN: Are there any --

MR. LYON: I think I am almost done.

MR. RICHARDS: Mr. Chairman.

MR. STEIN: Yes.

MR. RICHARDS: I would like to make a comment here if I may and ask a question.

You have pointed this out, that it is stated here that the purpose of this conference is to fix criteria and schedules which will both be reasonable and enforceable.

I assume that while we are talking about -- when we say "criteria" here -- that we are not proposing a change in the criteria -- stream water criteria -- that have been adopted by the State of Pennsylvania and accepted by the Federal Government.

Presumably the criteria that you are talking about is criteria with reference to maybe a specific outfall, and there should be a question raised here about the acceptability of this type of information, whether the Federal Government or the State has the authority to fix specific criteria on outfalls.

My main question --

MR. STEIN: Well, Mr. Richards, let me indicate to you that we have been doing that in the enforcement conference for years long before we had the standards provision in the law, and we are continuing to do that. I think that is our major job at these conferences to fix specific requirements at outfalls -- and dates.

MR. RICHARDS: And the following question would be, then, are these adjusted so that the purpose would be to meet the established water quality criteria?

MR. STEIN: Mr. West.

MR. WEST: Yes, sir. These recommendations were what the EPA staff feels are necessary to meet the present water quality standards. We have not proposed any new stream standards. The recommendations are just to meet the present water quality criteria.

MR. RICHARDS: One other question. Whether we say that the schedules are reasonable, I would like to know if Mr. Lyon feels that the date fixed for completion of construction of waste treatment facilities of December 1973

— if he feels that is a reasonable date.

MR. STEIN: Mr. Lyon, did you hear him?

MR. LYON: Yes, I think in general it is.

MR. RICHARDS: That is all.

MR. STEIN: Mr. Horton.

MR. HORTON: Thank you, Mr. Chairman.

Just a couple of questions here.

On page 74, Bill, you are talking about suspended algae, and I am not just sure I understand the intent of this. It seems to me, as I read this, that you are saying that the Ohio River is too low in algal population. Did I get the point? Is the point here you are saying that there should be more algae in the river?

MR. WEST: Like I say, this is a second-hand interpretation, but the map listed as Figure 7 shows that what they considered to be toxic conditions were the conditions at the Ohio River at the point. Downstream from ALCOSAN or right before ALCOSAN it was nutrient deficient. In the Neville Island area it was fertile; nutrients were not required for growth. It remained this way until you get down past the Dashields Dam where it is again nutrient deficient. This condition persists, I think, until the state line, where there were toxic conditions again.

What, I think the biologists are saying here:

that the reason for the lack of nutrients in the Upper Ohio River is that evidently it is either iron or something else is precipitating the phosphorus which would be the nutrient that would cause growth in this area.

MR. HORTON: Well, that is one of the points I wanted to get at because as you read that surely you are not suggesting that we add nitrogen and phosphorus to the river?

MR. WEST: No, sir.

MR. HORTON: Well now, it seems that you have got something there. The iron is removing the phosphorus. Now, has your staff evaluated what is going to happen if you take out the iron? Are you going to create an algal problem which we are trying to get rid of in a lot of places? I mean has this been considered and evaluated here?

MR. WEST: No, we haven't really gone into this thing, I think, in depth as to what would happen if somehow we removed all of the iron -- the dissolved iron in particular -- from the stream, whether there would be an algal problem or not.

I think what the main purpose of Figure 7 is, is to show that there are conditions where the water is actually toxic to algae.

MR. HORTON: Well, you use the word "toxic," and

I don't know that we exactly know what that means.

For example, years ago when I first came to Cincinnati we had some quite severe taste problems with algae at Cincinnati. Since Meldahl Dam was built, we have had very little algae. I don't know whether there is a cause-and-effect relationship there or not. But I mean to use the word "toxic" -- what prevents the algae?

MR. WEST: What we are saying is that there is something being added or in the stream that does not permit algae to survive in these areas.

MR. HORTON: Well, that is true.

MR. WEST: Well, if it only was killing off algae! Our concern is what is it doing to other organisms in the stream -- your bottom animals, your fish population. This is the concern. The suspended algae is used more as an indicator, I would say, than as an actual result wanted.

MR. HORTON: Well then, where we have got a lot of algae that is good, huh?

MR. WEST: I didn't say that; you did.

MR. HORTON: Well, I am asking you.

MR. WEST: The purpose for this discussion on suspended algae is that it is used as an indicator. We use coliform as an indicator of bacteria. It is simply an indicator, and when there are toxic conditions for algae, you can assume that there is going to be toxic material to other organisms, bottom animals, and fish populations, and such.

MR. HORTON: But if we are going to correct it -- if it is a bad situation -- we have got to know what is the toxic element. Did you find that out?

MR. WEST: Well, I don't have on every one of them, but I will say without doubt that the toxic conditions at the state line are the result of a discharge of a water-oil emulsion from the Crucible Steel Company plant at Midland, Pennsylvania.

MR. HORTON: Well, fine, good. Then we have got something to go on.

I have a couple of other quick questions, Mr. Chairman.

MR. STEIN: Go on.

MR. HORTON: Getting to the question of the Salmonella, which you isolated from a number of sampling stations, was any effort made to pinpoint where the Salmonella is coming from? What I am getting at: sure you found them in the river, but, of course, we get Salmonella from warm-blooded animals and cold-blooded animals as well as from domestic sewage, and your table shows that a good many of the municipal sewage treatment plants were disinfecting their sewage.

What I am trying to get at: Could you pinpoint any particular source of where the Salmonella was coming from?

MR. WEST: During this study, we did not go to point sources for Salmonella determinations. As you know, it is very difficult -- this procedure -- for detecting Salmonella. It is a long, involved process. It involves putting out swabs at selected stations for several hours, if the fishermen don't cut them or some toad knocks them away, and we just didn't go into every source at that time. Maybe this is one thing we should do.

MR. HORTON: Thank you, Mr. Chairman. I have no more.

MR. STEIN: Thank you.

At this point, we will recess for lunch and reconvene at 1:30.

(Noon recess.)

- - -

AFTERNOON SESSION

- - -

MR. STEIN: Let's reconvene.

Can we have Mr. West again? We haven't completed.

MR. LYON: Mr. West, on page 68 of the report, you talk about the time when the steel mills were shut down in 1959, and the reduction in dissolved iron -- not the total but the dissolved iron -- and you say: "Therefore, iron in the upper Ohio River Basin is not solely due to acid mine drainage."

Do you agree that acid mine drainage is still the predominant pollution problem as far as iron and dissolved solids and acidity is concerned?

MR. WEST: I would agree that the acid mine problem is the dominant contributor of iron acid and, of course, a low pH, but I think what we were trying to point out here is that the dissolved iron concentrations, which is really what maybe a water treatment plant would be more concerned about rather than the total iron. The total iron, of course, the treatment plant can handle very readily; dissolved is the problem. I am not an expert on the water treatment plant, but I understand that this is the main problem.

MR. LYON: Now, Mr. Chairman, that finishes the questions I have. I do have a few comments and requests to put things into the record that are relevant to our view of the report.

I would like to make part of the record Chapter V of Part 601, Subpart B of the Federal Regulations, which require EPA to make sure before they give a grant that the standards are being met, and that pollution is being prevented, and I have a copy of that regulation here.

MR. STEIN: Thank you.

That is a little like carrying coals to Newcastle, but we will put it in the record.

MR. LYON: Absolutely. It seems not to have been recognized in the report.

(The document above referred to follows.)

FEDERAL REGISTER
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Title 18—CONSERVATION OF POWER AND WATER RESOURCES

Chapter V—Federal Water Quality Administration, Department of the Interior

PART 601—GRANTS FOR WATER POLLUTION CONTROL

Subpart B—Grants for Construction of Treatment Works

On March 31, 1970, notice of proposed rule making was published in the FEDERAL REGISTER (35 F.R. 5346) which set forth the text of regulations, proposed to amend Subpart B relating to basin plans, regional or metropolitan plans, industrial waste treatment, design and inspection of waste treatment facilities.

Pursuant to the above notice, a number of comments have been received from interested persons, and due consideration has been given to all relevant matter presented. In light of the preceding, a number of revisions have been made in the rules as proposed.

In accordance with the statement in the notice of proposed rule making, Subpart B of Part 601, as set forth below, is hereby adopted effective on publication.

Subpart B—Grants for Construction of Treatment Works

Sec.
601.32 Basin control.
601.33 Regional and metropolitan plan.
601.34 Industrial waste treatment.
601.35 Inspections.
601.36 Design.

AUTHORITY: The provisions of this Subpart B issued under section 8 of the Federal Water Pollution Control Act, as amended (70 Stat. 502; 33 U.S.C. 466e) and section 22(a) of the Act, as amended (76 Stat. 204; 33 U.S.C. 466).

§ 601.32 Basin control.

(a) No grant shall be made unless the Commissioner determines, based on information the State, or where appropriate, the interstate agency, for the areas within their respective jurisdictions, furnishes to him pursuant to paragraph (b) of this section that a project is included in an effective current basin-wide plan for pollution abatement consistent with applicable water quality standards.

(b) In reaching such determination, the Commissioner may require information in such manner as he prescribes concerning the total basin plan, or portion thereof, as he deems adequate to evaluate the effectiveness of the project. Such information shall be furnished within one year of the date of the Commission's request for such information. The Commissioner may extend this period for proper cause. For this purpose, the affected river basin waters shall be deemed not to include any waters outside the State in which the project is located but shall include waters in another State if an interstate agency has jurisdiction of the additional affected basin waters. The Commissioner shall consider whether the plan adequately takes into account all, or such as may be appropriate, of the following:

(1) *Sources of pollution*. An identification list of all significant point sources of waste discharges: municipal, industrial, agricultural and others.

(2) *Volume of discharge*. The average daily volume of discharge produced by each waste discharger. Cooling water, or cooling water which is contaminated by industrial waste or sewage shall be reported separately. Storm water and mixed storm water and sewage shall be identified and reported separately in terms of frequency-volume relationships.

(3) *Character of effluent*. The major characteristics of each such waste discharge together with a measurement of their relative strength or concentrations, including but not limited to:

BOD 5	mg/l.
COD	mg/l.
Color	Platinum cobalt scale.
Turbidity	Jackson candle scale.
Solids	mg/l.
Toxic substances	
Metal ions	mg/l.
Fluorides	mg/l.
Dissolved substances	ppm.
Temperature	C.
pH	
Radioactivity	pCi/l.
Chlorides	mg/l.
Nutrients	mg/l.

(4) *Present treatment*. A brief description of the type of treatment being given by each discharger, together with a statement of the degree of treatment currently being achieved.

(5) *Water quality effect*. A brief description of the effect of discharges and abatement practices upon the quality of the water in the basin, and the anticipated effectiveness of the proposed project in improving the quality of the water.

(6) *Detailed abatement program*. Identify all waste discharges for which present treatment is less than required by standards, or which will degrade water quality below standards. For each such discharge so identified, furnish an abatement schedule containing the following:

(i) Level of treatment to be required expressed in percentage of reduction of BOD and/or any other significant parameters required pursuant to applicable Federal, State and interstate laws, regulations and orders.

(ii) Volume of flow for which waste treatment facilities will be designed.

(iii) Estimated completion dates for preliminary plans, for final design, for construction, and for operation of waste treatment facilities.

(iv) Estimated cost of design and construction if available.

(c) If the proposed project is not included in an effective basin-wide plan for pollution abatement, and the Commissioner determines that such project will nevertheless effectively contribute to the improvement of the quality of the water or prevention of water pollution in the basin, he may waive the limitation of paragraph (a) of this section. In making his determination the Commissioner may require all or a part of the information identified in paragraph (b) of this section.

(d) The Commissioner's discretion in determining the desirability of any project shall not be limited by any provision of any basin-wide abatement plan pursuant to this section.

§ 601.33 Regional and metropolitan plan.

(a) A grant for a project shall not be made unless the Commissioner determines that such project is included in an effective metropolitan or regional plan developed or in the process of development, and certified by the Governor or his designee as being the official pollution

SAMPLE PLAN

Plan illustrated taken from the Massachusetts water quality standards report and illustrates the format and information required for a functionable implementation plan.

CONNECTICUT RIVER

LOCATION	SOURCE	TYPE OF WASTE	VOLUME mgd	RIVER CLASSIFICATION		TREATMENT			DATES						REMARKS
				Present	Proposed	Present	Required		Prel. Report Plans	Approp. of Funds	Acq. of Site	Compl. Final Plans	Start of Constr.	Compl. of Constr.	
WEST SPRINGFIELD	Municipal Proj.#1	Sanitary	3.2	D	C				compl.			12/67	3/68	12/68	To Springfield STP
	Proj.#2	Sanitary		D	C							1/73	3/73	12/74	
	Southworth Co.	Paper		D	C	none			compl.			12/67	3/68	12/68	(7) To Westfield River
	Strathmore Paper Co. Inc.	Paper		D	C	none			compl.			12/67	3/68	12/68	(7) To Westfield River
	Pre-moid Paper	Paper		D	C	none			compl.			12/67	3/68	12/68	(7) To Westfield River
WESTFIELD	Municipal	Sanitary	2.0	D	B	none	secondary			7/67		5/68	7/68	7/70	Westfield River
	Foster Machine Co.	Plating			B	none	pre-treat.		9/67			5/68	7/68	7/70	(8) To Little River
	Stevens Paper Mills Inc.	Paper	1.5		B	save-alls			9/67			5/68	7/68	7/70	To Little River
	Columbia Bicycle	Plating		D	B	none	pre-treat.		9/67			5/68	7/68	7/70	(8) To Little River
	American Abrasive	Inorganic		D	B	none	primary		9/67			5/68	7/68	7/70	To Westfield River
EAST LONG MEADOW	Municipal	Sanitary	1.25	D	B	primary	secondary		1/72	3/72	4/72	1/73	3/73	6/74	(4) To Pecousic River
LONG MEADOW	Municipal	Sanitary	0.82	D	C	primary	secondary		1/72	3/72	4/72	1/73	3/73	6/74	(4)
AGAWAM	Municipal	Sanitary	1.0	D	C	primary	secondary		1/72	3/72	4/72	1/73	3/73	6/74	(4) Treated by Springfield

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Appendix 1-C

PROCEDURE TO AMEND OR MODIFY FEDERALLY APPROVED WATER QUALITY STANDARDS

1. Water quality standards which have been approved by the Secretary of the Interior or the Environmental Protection Agency Administrator become Federal standards.

2. Approved water quality standards can only be revised pursuant to Section 10(c)(2) of the Federal Water Pollution Control Act, which can be set in motion only by specific action by the Environmental Protection Agency Administrator or a Governor of an affected State. 1/ The Environmental Protection Agency Administrator must call a conference and thereafter prepare regulations setting forth applicable standards. If the State has not adopted water quality standards found by the Administrator to be consistent with his proposals or a petition for public hearing has not been filed by a Governor, the Administrator is to promulgate such standards. If such a hearing is requested under Section 10(c)(4), the Administrator is required after public hearings held by a duly constituted board to issue standards in accordance with the board's recommendations.

A State may not unilaterally change standards. The only way a State may effectuate a change is to ask the Administrator for a revision. The Administrator may not change standards without having a standards setting conference and if the Governor of an affected State so requests a subsequent hearing.

1/ The phrase "the Governor of any State affected" covers water quality standards revisions desired by the Governor of the State which originally adopted the standards or of any other affected State. The paragraph therefore applies to all water quality standards revisions and establishes a single, uniform revision procedure, since the Federal statute, by prescribing a specific procedure, presumably preempts State power to employ a different one.

abatement plan developed or in the process of development for the metropolitan area or region within which the project is proposed to be constructed. In the case of an interstate metropolitan or regional area, the plan shall be certified by the respective Governors or their designees.

(b) In rendering such determination the Commissioner shall consider whether such plan adequately takes into account: Anticipated growth of population and economic activity with reference to time and location; present and future use and value of the waters within the planning area for water supplies, propagation of fish and wildlife, recreational purposes, agricultural, industrial and other legitimate uses; adequacy of the waste collection systems in the planning area with reference to operation, maintenance and expansion of such systems; combination or integration of waste treatment facilities into a waste treatment system so as to achieve efficiency and economy of such treatment; practicality and feasibility of treating domestic and industrial waste in a combined waste treatment facility or integrated waste treatment system; need for and capacity to deal with waste from sewers which carry storm water or both storm water and sewage or other wastes; waste discharges presently in, or anticipated for the planning area; effect of the proposed waste treatment facility upon the quality of the water within the planning area with reference to other waste discharges and to applicable water quality standards.

(c) If the proposed project is not included in an effective metropolitan or regional plan for pollution abatement, and the Commissioner determines that such project will nevertheless effectively contribute to the prevention of pollution or improvement of the quality of the water in the metropolitan area or region, he may waive the limitation of paragraph (a) of this section. In making his determination the Commissioner may require all or a part of the information identified in paragraph (b) of this section.

(d) The Commissioner's discretion in determining the desirability of any project shall not be limited by any provision of any metropolitan or regional plan pursuant to this section.

§ 601.34 Industrial waste treatment.

(a) Where a project will treat industrial wastes, a grant may be made in the discretion of the Commissioner for such project provided that it is included in a waste treatment system treating the wastes of the entire community, metropolitan area or region concerned. For the purposes of the section "waste treatment system" means one or more treatment works which provide integrated, but not necessarily interconnected, waste disposal for a community, metropolitan area or region.

(b) If industrial waste is to be included in the waste treated by the proposed project, the applicant shall assure the Commissioner that such applicant will require pretreatment of any industrial waste which would otherwise be detrimental to the treatment works or its proper and efficient operation and maintenance, or will otherwise prevent the entry of such waste into the treatment plant.

(c) Where industrial wastes are to be treated by the proposed project the applicant shall assure the Commissioner that it has, or will have in effect when the project will be operated, an equitable system of cost recovery. Such system of cost recovery may include user charges, connection fees or such other techniques as may be available under State and local law. Such system shall provide for an equitable assessment of costs whereby such assessments upon dischargers of industrial wastes correspond to the cost of the waste treatment, taking into account the volume and strength of the industrial, domestic, commercial wastes and all other waste discharges treated, and techniques of treatment required. Such cost recovery system shall produce revenues, in proportion to the percentage of industrial wastes, proportionately, relative to the total waste load to be treated by the project, for the operation and maintenance of the treatment works, for the amortization of the applicant's indebtedness for the cost of such treatment works, and for such additional costs as may be necessary to assure adequate waste treatment on a continuing basis. For purposes of this section "industrial waste" shall mean the waste discharges (other than domestic sewage) of industries identified in the Standard Industrial Classification Manual, Bureau of the Budget, 1967, as amended and supplemented, under the category "Division D—Manufacturing," and such other wastes as the Commissioner deems appropriate for purposes of this section.

§ 601.35 Inspections.

No grant shall be made for any project unless the State water pollution control agency assures the Commissioner that the State will inspect the treatment works not less frequently than annually for the 3 years after such treatment works are constructed and periodically thereafter to determine whether such treatment works are operated and maintained in an efficient, economic and effective manner and unless the applicant assures the Commissioner that the treatment works will be maintained and operated in accordance with such requirements as the Commissioner may publish from time to time concerning methods, techniques and practices for economic, efficient and effective operation and maintenance of treatment works.

§ 601.36 Design.

No grant shall be made for any project unless the Commissioner determines that the proposed treatment works are designed so as to achieve economy, efficiency and effectiveness in the prevention or abatement of pollution or enhancement of the quality of the water into which such treatment works will discharge and meet such requirements as the Commissioner may publish from time to time concerning treatment works design so as to achieve efficiency, economy and effectiveness in waste treatment.

Dated: June 24, 1970.

FRED J. RUSSELL,
Acting Secretary of the Interior.

[F.R. Doc. 70-8396; Filed, July 1, 1970; 8:46 a.m.]

MR. LYON: I would like also to comment, but not put into the record because it would be impractical, on the value of this report and its posture with regard to the people of this area.

Frankly, the best that can be said for this report — and I would like to point out, as we will in our report — that not only have the people of this area and the industries in this area spent $300 million so far on pollution abatement, but on the drawing boards and under construction are $200 million of additional work by municipalities and industries and State money; this does not include Federal money; that this report and the posture which it takes is an incredible insult to the people in this area because it does not in any way, shape, or form give recognition to the intensive abatement program that is under way to clean up the Ohio River and its tributaries.

A word about reports. Since 1924 — and, by the way, the 1924 report on the Ohio River, we brought them along. Dick, if you will push them here in the middle so everybody can see them. We have brought with us all of the Federal reports that have been written on the Ohio River. As you can see, it is quite a collection.

Federal reports on the Ohio River have been written in 1924, 1937, 1942, 1943, 1951; three in 1963 —

that was a banner year; 1968, 1969, and 1971. Let's add this one to it, since it too is a Federal report.

By the way, we only brought those parts of the report that refer to water quality. Some of those reports in themselves — the total report — are as much as that.

The people of Pennsylvania have helped to pay for those reports. But whenever the Federal Government prepares a report on a river like this, they come to see our people in Pittsburgh and get the data and write it up and bring it back to us and ask us to comment on it. And then we go to meetings and conferences and conferences and more conferences.

I would just like to say, Mr. Chairman, that the time has come for us to have fewer reports and fewer conferences, and a lot more action. And in our report for the State of Pennsylvania we will talk about the kind of action we think the Federal Government could take to help clean up this river.

Thank you.

MR. STEIN: Are there any — Mr. West, do you want to say anything?

MR. WEST: No comment.

MR. STEIN: Mr. Riley.

MR. RILEY: No, thank you.

MR. STEIN: I agree with everything you said. I think we need more action, and we need fewer reports and fewer conferences. As I get it, the reason we are here is because the river still looks the way it looks and is, and the implementation schedule is not going to be met. I don't know that we need any more conferences after this. We need action. And the purpose is to set this up.

Again, let me put this out, and maybe I misunderstand this. I am making no judgment on this, but this is the way I see it. The Federal report presentation says that the July 1, 1972, completion date, i. e., when we were supposed to complete the works, is no longer realistic. The purpose of the conference is to fix criteria and schedules which will be both reasonable and enforceable.

I would agree with you that if we pick this, we have given this enough chances; we have had enough reports on the Ohio River. If someone doesn't meet another schedule, maybe something else is called for, sure. I think we are very close together on that, Mr. Lyon

MR. LYON: When you say "we," Mr. Chairman, are you speaking for the conferees or for EPA?

MR. STEIN: I am speaking for myself with an editorial "we."

MR. LYON: Because I think --

MR. STEIN: No, I want to say that what I understood you to say, I think I agree with you. I think the time for reports and conferences may be over. We have studied this river down to the nines. I have watched the Ohio River for years. I don't think that the country or anyone else necessarily can be proud of the condition of that river out here now. If we have a schedule where the time schedule is passed and we are not going to meet the dates, I suggest this is the time for us -- unless you think the Federal people are wrong -- to set up a realistic schedule on what we are going to do and go on with the job. I don't see that we need very many if any more conferences. Maybe we need a progress meeting or something to check up to see if we are complying with the dates or if anyone is slipping behind, but I think we have talked about this long enough.

MR. LYON: All of the schedules have been in EPA's hands for as long as they have been in existence. The annual revision schedules have also been submitted to EPA in many forms. If you have any comments about any of the schedules, we would be very happy to have them.

MR. WEST: Could I make a comment about them?

MR. STEIN: Yes.

MR. WEST: Okay.

Pennsylvania's water quality standards, adopted by the Sanitary Water Board in June 1967, stated that they would issue orders to the municipalities and industries and the target date for the issuance of these orders was June 30, 1968.

These orders for industries in this area did not go out in June 1968. They did not go out until June 1970. After these orders went out, we went to Region V. We talked to the people of Region V about had the companies submitted schedules as requested by the secondary treatment order that was issued on June 9, 1970.

We were told at that time that the companies did not have to respond to this answer.

Now you are worried about the taxpayers' money. Now, why would you send out an order that nobody had to answer?

Furthermore, we went to Mr. Lyon's office; we talked to Mr. Lyon and Mr. Boardman about this problem. He made a conference call to Pittsburgh; asked the same question: where are the schedules? And the answer came back that they were not required to submit a schedule.

MR. LYON: Would you mind being specific as to just who was not supposed to submit a schedule? I mean --

what categories?

MR. WEST: Excuse me, sir.

I visited Region V office here in Pittsburgh on January 15 and 16, 1971, approximately 6 months after the secondary treatment order was issued to the industries on the Ohio River.

At that time, four industries on the Ohio River had answered the question.

MR. STEIN: Four out of how many?

MR. WEST: Well, I don't remember the total number, but I think it was like 23 we looked at; four of them answered. I could name two of them, I think. One of them was the J&L plant. I am not sure, but I think another one was the Shenango plant.

All of the other industries — and this includes many on the Monongahela — had not filed either a schedule or a statement to the fact that they were meeting the secondary treatment order.

Not being satisfied with the answer, myself, Mr. Cook, Mr. Bisher, Mr. Dick Stein from EPA visited Harrisburg; talked to Mr. Lyon, Mr. Boardman and several other members of his staff, and we asked him this question: Why weren't those orders answered?

Mr. Lyon called Region V, and the answer was that they were not required to answer the orders. That is all I have to say.

MR. LYON: Mr. Chairman, this information is incorrect. We have been through this before. This is a misrepresentation of what has happened. I have said before that the orders for industrial wastes for pH and iron were ordered in 1967 --

MR. WEST: Excuse me. I didn't say the order for pH and iron.

MR. LYON: All right, now, the orders regarding secondary treatment were issued later for a very obvious reason: We needed to know the BOD loads from the industries. There is not much point in issuing orders until you know what you are ordering industries to do. BOD loads from steel mills are not a major issue. BOD loads from ALCOSAN, as your own report says, is a major issue. That is where the big BOD load is coming from. That is why we issued that order in 1966.

Now let me read you the schedule, just to give you one example of the schedule -- the kind of schedule that we have. And that information has been available to you, and we have given it to you, and you keep telling us that you don't have it, and we keep giving it to you again, and you keep telling us that you don't have it.

The problem is that there are so many different people in EPA who get these schedules that there is absolute confusion as to who has gotten what. These schedules have been submitted repeatedly to EPA; we will continue to give them, and you will continue to tell us that you don't have them.

Let me read you a Jones and Laughlin schedule: chemical waste treatment plant, preliminary plans, January 1968, done; preliminary application, 4-1968, done; advertising for bids, 11-1968, done; award contracts, 3-1969, done; start construction, 4-1969, done; complete construction, 10-1970, done; begin operations, 4-1971, done; cost, $3,400,000.

Byproduct plant -- I won't read all of the dates, not to take the time -- but the schedule starts in May of 1968 and finishes in January 1970, and the cost was $700,000.

Blast furnace aerator: starts in January 1968; finishes in February of 1972. They are on schedule. The cost is $2 million.

Water recirculation system, 5-tandem mill: starts in 1968; finished in March of 1971; on schedule; cost, $1,600,000.

Scale pits, Phase I: start July 1968, finish, October 1970; it is expected to be completed by 12-1971;

cost, $900,000; Phase II, etc.

Do you want me to read all of these schedules? I will be happy to do that.

MR. WEST: First of all, I would like to ask just one pointed question. Do any of these schedules you are reading me refer to secondary treatment of -- the equivalent of secondary treatment of industrial wastes, or are these schedules in compliance with either your permits or your acid iron or your heated waste orders?

MR. LYON: I will ask Mr. Okorn, our Chief Enforcement Officer, to discuss that.

MR. STEIN: May we have your full name, sir?

MR. OKORN: Kenneth Okorn, Chief Enforcement Officer, Administration Section, for the Pittsburgh Regional Office.

The schedules to which Mr. West are referring, and the orders to which he is referring were a series of orders sent out modifying industrial waste permits to require an equivalent of secondary treatment. The gist of the orders was that if you are not meeting these standards, you submit a schedule in 90 days. The orders did not require a reply if you were meeting the standards. However, some of the industries did reply anyway and say they were meeting them. Some just sent in a simple statement; others sent in volumes of data showing that they felt they were meeting these standards.

The most important part of it I feel from the enforcement standpoint is that this was a permit modification, and anyone who is not meeting the standards is in violation of their permit. We have been taking enforcement action along these lines in the form of both criminal and injunctive actions. The status in these cases right now are that some comply and some haven't.

MR. LYON: And Mr. Eichbaum, Mr. Chairman --

MR. EICHBAUM: I would like to further address this point for just a minute.

The implication seems to be that where we should have received schedules for compliance we didn't follow up to find out whether we did or not, and that is inaccurate.

In a number of these cases, we have taken both criminal action -- we have taken injunctive action in the courts, and the lawyers for the department operating under me have in other cases entered into negotiations designed to both obtain a penalty in the sum of dollar payments, and secondly to obtain a commitment as to what the course of action as far as submitting these schedules will be in the future.

So I think your assertion is essentially inaccurate, particularly in light of the fact that this is supposed to be an enforcement conference.

You haven't addressed the questions regarding enforcement at all in your report, which is somewhat unusual.

MR. WEST: I am addressing myself to the implementation plan which I assume is an enforcement action that should be taken by the State of Pennsylvania. I don't know what else an implementation plan is but an enforcement action.

MR. STEIN: Are there any other comments or questions?

MR. WEST: I would like, at this time, to read a sample of the order that was issued somewhat belatedly in June of 1970.

MR. STEIN: All right.

Again, let me say that I think we have got the gist of this. But this is going back and forth. As far as I can see, possibly the major point in this -- and from what I heard earlier this morning there isn't much disagreement.

The requirement is that all municipalities and industries install secondary treatment facilities or its equivalent by July 1, 1972.

As far as I can see, that in all cases is not going to be done. I would not doubt that in some cases this will be done. If Mr. Lyon wants to take this occasion to commend industries for complying with the law, that is why we are here, and we will listen to it.

But I think, as an enforcement conference, if these dates are not being met, and some are behind, this is what we want to address ourselves to.

MR. EICHBAUM: Mr. Chairman, could I just interrupt for a minute?

MR. STEIN: You have.

MR. EICHBAUM: What I was trying to say was that the Commonwealth of Pennsylvania, where that case exists, is taking enforcement action without the need of having this conference.

MR. STEIN: Well --

MR. EICHBAUM: And the EPA has not done sufficient investigation to even apprise itself as to whether or not that condition is true.

MR. STEIN: Let me see if I understand you.

I am getting more incredulous by the moment. You are saying that we set a July 1, 1972, date, and if that date is going to be missed, you are taking enforcement action. Therefore, we don't have to come in to enforce a Federal date which is just what the State date is.

All right. I understand your position. But I think once we have adopted these schedules, they become a Federal date, and we have an obligation as well as the State. I don't think there is a difference.

Now if you want to go on go ahead. I think he did this. Do you want to put that in or not?

MR. WEST: Well, if you feel it is not necessary.

MR. STEIN: No, no, I don't want to cut anyone off, but I just wanted to set the perspective of the main issue. I think what you are stating is that Mr. Lyon has indicated that he has done certain aspects of the program in 1967 or 1968, and you are indicating that there are certain aspects of permits which didn't come out until 1970.

MR. LYON: We completely agree that this is so, and we have no objection at all of putting this order in the record if that is your concern.

MR. STEIN: No, I know you don't. A lot of this program is the same way.

You know, we were talking about these 1967 standards. Well, I know I worked on standards back in Washington awhile, and I was looking for Mr. Nalesnik who -- I don't know whether he is here now. Is he here? But when I left the standard proposition, we hadn't signed off on Pennsylvania's complete standards package yet. Have we signed off yet, Dick?

MR. BOARDMAN: No.

MR. STEIN: No.

In other words, we are talking about 1967 standards. The point is, as far as the Federal position is concerned, as I understand it, the State of Pennsylvania does not yet have a complete standard approved package.

MR. LYON: Mr. Chairman, if that is so, I would like to have permission to introduce into the record a letter from Secretary Udall, written in 1968, approving Pennsylvania's standards without exception. And it was handed to us by none less than the Under Secretary of Interior, at the Middletown Airport in Harrisburg in a public ceremony, which was accompanied by a great deal of public fanfare. And apparently now EPA is saying that didn't happen. Well, it did happen, and we will even give you pictures of the event.

MR. STEIN: I am sure that is the last letter you received on the subject, Mr. Lyon.

Mr. West, do you want to go on?

MR. WEST: No, the lady wants to get on with it, so I think we better get on with it.

MR. STEIN: All right. Are there any other comments or questions?

MR. LYON: Well, Mr. Stein, you have just opened a whole new Pandora's box. We thought this letter was valid. Isn't it? I mean, does this mean that he didn't really mean what he said when he wrote us this letter?

MR. STEIN: Of course he meant what he said when he wrote it. But since that time the Federal Government has come up with an antidegradation policy, and you have been informed of this antidegradation policy repeatedly. This has been put out in Federal Regulations and published in the Federal Register. Up to this time we have not had a signoff on that antidegradation policy from Pennsylvania, although I would suspect -- and again I don't know the figures; maybe Mr. Nalesnik can fill me in -- whether 40-odd States have come across with an antidegradation policy.

MR. LYON: Mr. Stein, you are wrong again. The Pennsylvania Environmental Quality Board, in September -- August 1971, adopted an antidegradation policy that was recommended by EPA. It was mailed to Mr. Ruckelshaus, and we asked for his reply and we got none, and we are now in September, and we have got no answer.

MR. STEIN: Well, I know I spent about a year trying to get one out of you. I am glad this came out.

MR. LYON: Well, the point is: The wording was suggested to us by EPA, and apparently EPA has changed its mind again because they won't tell us now whether it is acceptable or not.

Maybe you can tell us.

MR. STEIN: We have the standards man here and I will be glad to get that.

But this is the point in these programs. If you are talking about part of a permit -- and I just use this as an example -- or a part of a standard, you are not talking about the whole package. This is a complicated subject.

We have enough trouble with pollution control. I think if we are going to do this and if we are going to succeed, the Federal and State people have to see eye-to-eye.

MR. LYON: I think that is very true, Mr. Stein, and I would strongly urge you to spend some time in our offices -- I don't think you have even met Mr. Eichbaum. This is supposed to be an enforcement conference. You have never come to our offices in order to find out what the quality and nature of our program was. I would suggest that you do this, and you would find out some of these things, because you obviously -- as you indicated in connection with the antidegradation issue -- are not properly informed on what Pennsylvania's actions have been.

MR. STEIN: Well, I think I was thoroughly informed for a period of several years, but that is --

Mr. West, do you have any comments or questions?

MR. WEST: No.

MR. STEIN: Do you want to say anything else?

MR. LYON: No.

MR. STEIN: If not, thank you very much.

At this time, we are going to call on Mrs. Madoff. The reason for this is she feels she wants to ask certain of the Federal and State people questions while they are here.

Would you come up, Mrs. Madoff, and introduce yourself and fire away?

STATEMENT OF MRS. MICHELLE MADOFF,
MEMBER, ALLEGHENY COUNTY AIR POLLUTION
ADVISORY BOARD AND THE STATE CITIZENS
ADVISORY COUNCIL, PITTSBURGH, PENNSYLVANIA

MRS. MADOFF: Thank you, Mr. Stein.

I have a prepared text that I really want to go into in a minute, but I would like to ask a couple of questions before I start. I will start right in.

My name is Michelle Madoff, and I am a member of the

Allegheny County Air Pollution Advisory Board, and the State Citizens Advisory Council on the Environment. I have personally, as a representative of GASP, participated in over 200 hearings dealing with the polluters of our environment. And one thing that is clear as crystal is that it is easy to write laws, but that is a far cry from getting them enforced.

As I have testified here before at your Monongahela Conference, laws without enforcement are exercised in futility. Last year, when I met with Colonel West and the Corps of Engineers -- and I might mention this was a cooperative kind of effort to see how GASP and the Corps could work together -- he told me that one of his major problems would be to inventory the sources of pollution in our rivers and streams. We were comparing it to the Air Pollution Bureau. And he mentioned that although -- we just recently, at that time, had got some stringent regulations in air -- at least we were a couple of years ahead because we had inventory of what the air sources were. And that it would take the Corps at least 2 years to inventory their sources, not to mention that inspecting all of these sources only one at a time in order to give the 1899 permit might take 5 years.

May I ask Colonel West, am I pretty accurate in my comments?

COL. WEST: I frankly don't remember the exact figures, Michelle.

MRS. MADOFF: But am I in the ballpark?

COL. WEST: Yes.

MRS. MADOFF: Right. I go well prepared; I went with two witnesses, two attorneys.

This is no slur against Col. West. I believe he is a very cooperative gentleman and would really like to see this environment cleaned up as much as I would.

MR. STEIN: It is all in your point of view. I was defensive about attorneys in that comment.

MRS. MADOFF: Well, I think they are all right, especially if they work for GASP.

COL. WEST: I had witnesses of my own.

MRS. MADOFF: I think he had six to make sure he didn't do anything wrong.

My question, at this point -- I am very confused -- I want to just break away from my text here: I cannot find out from listening to you good gentlemen today -- would somebody please answer me -- I will start with Mr. Lyon -- do we have an inventory of our polluting sources -- Mr. Lyon, where are you?

MR. EICHBAUM: He just stepped out a minute.

MRS. MADOFF: Perhaps somebody can answer for him.

Mr. Okorn, do we have an inventory for this basin or this region under Mr. Lyon's jurisdiction of polluting sources? Is there one in existence?

MR. STEIN: Please identify yourself for the purposes of the record.

MR. OKORN: I thought that the one time would be sufficient.

MR. STEIN: No, the reporter really doesn't have eyes in the back of her head or that good a memory.

MR. OKORN: Kenneth Okorn, Department of Environmental Resources.

At the present time, there is a listing of all of the known industrial dischargers as far as their location, and the status of the case, the status of their permit, and so on. As far as specific opinions are concerned, this is being developed; it has not been completed.

MRS. MADOFF: So what you are saying then so that I understand you correctly, there is no inventory of polluting outlets to the river. There is none of that. You have all the companies listed and those that potentially could be polluters, but you do not have each outlet.

MR. OKORN: At the present time, there is no listing of each outlet in existence.

MRS. MADOFF: Isn't this sort of late in the day not to have had that?

MR. OKORN: There are very few people that do this. This is one of the big problems.

MRS. MADOFF: Well, that is one of the big problems. I think Messrs. Nixon and Zavodni would agree with that.

May I ask -- I'm sorry, I didn't mean to interrupt, but I just wanted to ask the Federal Government the same thing.

Mr. Stein, could you tell me, sir, or Mr. West — that is not Col. West; the other gentleman -- do you have this on the Federal level? Do we have everywhere in the United States an inventory of polluting outlets to the rivers?

MR. RILEY: Not totally, we don't.

MRS. MADOFF: Why not? I know we are not supposed to ask these questions. If we don't ask them we are not going to get anywhere.

MR. RILEY: It takes time to find them.

MR. LYON: Mrs. Madoff, can I comment for a moment?

MRS. MADOFF: Please, anybody.

MR. LYON: The answer is correct. There is no such inventory. We do have an inventory on our computer of all of the known water-using industries and, of course, we do have a great deal of information on the major dischargers in our permit system because you have to have a permit to be allowed to discharge. But I couldn't guarantee you that we have them all.

One reason we don't have them all is because we don't have enough people and money to get that information. Just to give you an example of the kind of problem you are confronted with, we decided once in Philadelphia to get a list of all of the dischargers that were going into the Delaware River from the city and any other industries in Philadelphia. And it took five students -- just the Philadelphia waterfront which is, what, 10 miles long -- it took five students three summers, 10 weeks in the summer, to do this. We don't have that kind of people to do that. If we did, we would do it.

I think it would be very important to do it, and I agree with the point you are trying to make.

MRS. MADOFF: Then, we ought to really concentrate as a remedial answer to some of the problems here of obtaining at any cost, and perhaps using students -- there are a lot of, you know, students who could use a little extra money I am sure.

MR. OKORN: For the purposes of illustrating this --

just technical -- I would like to show you what our problem is.

The field staff for the Ohio River and its major tributaries are here today. This excludes the Monongahela and the Allegheny River; just the Ohio main stem and the tributaries in Pennsylvania. And I would like the field staff to stand up. (Laughter)

MR. LYON: One man.

And by the way that, Mr. Chairman and Mrs. Madoff, is not as you know unusual. In the whole United States -- in the whole, entire United States, as of EPA's most recent report, there are 3,900 people working at the State level trying to clean up pollution in all of our streams all over the United States. That is less than the number of people it takes to run the Library of Congress in Washington. It takes 4,500 people to run the Library of Congress.

If this country thinks it is going to control pollution with that small number of people, it isn't going to be done. One percent -- less than 1 percent of the Federal dollar -- Mr. Stein opened this conference by saying that the primary responsibility of pollution control rests with the States -- that is true. But look what the Federal Government does. They give us 1 percent of the Federal dollar to hire people like Mr. Davidson who stood up, who has got to take care of all of the pollution problems on the Ohio in Pennsylvania.

MR. STEIN: Let me — again, I think we are all in agreement on this.

To give you the perspective as we see it — and you have had an object lesson here today -- first, let me start out by saying I doubt that there is a State in the Union that doesn't have more people working on homicides than on pollution control. And that is not saying we don't need people working on homicides, but it shows you where we stand.

Now, we do have federally a fairly good — and when you say "all" I will have to say --

MRS. MADOFF: I will settle for most.

MR. STEIN: — we simply don't have all. We have a fairly good municipal inventory, and the reason we have a fairly good municipal inventory is because we are dealing with public bodies and public disclosure. We have had a rather poor industrial inventory.

Now we have a permit program, and all the industries are required to file and get permits. We expect, when these permit applications come in, we will have a rather good inventory of both municipal and industrial sources.

Again, when we say —

MR. LYON: Mr. Stein.

MR. STEIN: Let me finish that. Let me say we will not have a perfect one.

However — and this is the point I want to make — I have been at perhaps several (under a hundred) meetings of conferences or gatherings of this based on Federal reports. Despite the kind of inventory we have, we find in order to get an exhaustive operation in any particular case, or an investigation, we have to send a special prober particularly in a complicated area such as this to come up with sources.

Again — and I don't think this is a criticism of anything but just an observation — I have never been at a single meeting out of the several hundred over the past 20 years, where we and the States have come up with a report and we have had complete unanimity of agreement on the facts. When a city or a company comes in, this always is changed.

Now Mr. Lyon spoke about dynamics. This is changing day to day. I think you have to recognize that in pollution control we are dealing with a moving target. Whenever you go out there you don't see the same river or you don't see the same industries operating in the same way from time to time. It is like going to the zoo. If you bring your child out to the zoo on successive weekends you can't see the same zoo because some animals might have shipped in; some might have shipped out; some might have died; and some might have been born; and some might have stayed on the sick list. It is always changing.

But the point is I think with the accommodation that we have now of the municipal, industry, and the permit system, and our field investigation crews hitting particular areas on an intensive basis, we are going to get a reasonably complete inventory.

MR. LYON: Mr. Chairman.

MR. STEIN: Yes.

MR. LYON: You said "we." Which "we"?

MR. STEIN: All of us. That "we" means, I hope, Federal and State cooperatively —

MR. LYON: I know.

MR. STEIN: -- and every other interested party.

MR. LYON: But you said — and I want to make this point clear because it makes an important point — you said we are going to get these permits under the 1899 Act. Where does the EPA get the list of the industries?

MR. STEIN: Do you want to answer that?

MR. RILEY: Mr. Lyon, that is the list of industries acquiring a permit?

COL. WEST: I think we have to answer that. EPA gets that list from the Corps of Engineers, and in the case of Pennsylvania the Corps gets it from Mr. Lyon's office.

MR. LYON: I think that is an important point because it always goes back to this one guy. He is the one who provides the information, and it isn't EPA. All of these Federal programs, including that pile of reports over there, always start off with this one guy who has to bring in the information, and then the Federal people come down to see us and ask us for the information.

The reason I make this point is not in a critical vein, but only to say that in the Congress and in the executive branch of Government, there are lots and lots of decisions made every day that have an impact on Pennsylvania and on the Pennsylvania taxpayers' dollar, and yet very little Federal money comes down to us to help all of these Federal Agencies do this work. This is the point I am trying to make.

MRS. MADOFF: Mr. Lyon, and Mr. Stein, and Mr. Okorn, Col. West. Let us assume that in my conversation with Mr. Wesley Gilbertson of DER, day before yesterday 2 hours on the telephone, he told me to his knowledge there was a more or less legal listing of the water outlets, simply because Mr. Okorn said you must have a permit to operate. So let us assume that this list is fairly accurate. As you say there might be somebody who, as you say, going to the zoo, you may not have the same monkeys there. However if we don't go to the zoo for 20 years, the monkeys are going to die off and some new monkeys come on the scene. So we cannot wait 20 years.

And my next comment, when Mr. Stein talks about hundreds of conferences over 20 years — I don't want to offend anyone, sir, but what would you think this conference costs us — the citizens and the taxpayers?

MR. STEIN: Again, I would have to check that out very closely.

MRS. MADOFF: Make a ballpark figure — a guess — go ahead. We will get a ballpark guess.

MR. STEIN: Maybe $10,000.

MRS. MADOFF: Now, you take that over 20 years, gentlemen. Do you think we could have paid those students to go out and have a very accurate list?

MR. STEIN: Wait a moment. We have gotten over $5 billion worth of construction, Mrs. Madoff. I think it is well demonstrated that the conference and enforcement technique of the Federal Government and possibly the State, through its enforcement technique, gets the biggest bang from the buck of the public dollar in cleaning up pollution.

Conferences and enforcement action have been the least expensive operation that we have had. That is why --

MRS. MADOFF: I am not arguing that, but I am saying less conferences and using some of that money to get sources or anything else we need in enforcement. And I am getting to an issue, as you will see very quickly, that will take very little capital. And if we took the money out of 1/3 of our conferences, we would pay for what I would like to see happen.

Now just to continue and, again, I must apologize before I make a statement -- this is not personal to Col. West, because I, again, think he really wants to do the job -- but how on earth do we turn over to the Corps of Engineers the responsibility of enforcement? And should not Col. West of the Engineers be sitting on this panel? Are you not an enforcement Agency?

COL. WEST: You are asking me?

MRS. MADOFF: Yes, sir.

COL. WEST: An enforcement Agency --

MRS. MADOFF: Yes, on the 1899 permit system.

COL. WEST: -- I would say no. We are in charge of the permit system under the 1899 Act. I will admit to you, as I did in my office, that with EPA having the title they have, to me this makes very little sense. I think there is a darned good reason for it being that way though and that is because the law says so.

MRS. MADOFF: That is not a good reason. All laws are not good laws.

COL. WEST: Well, that is the reason.

MRS. MADOFF: What we are doing is taking it literally.

COL. WEST: I think I made another point to you in the office that all laws may not be good ones, but some laws are very difficult to change. And sometimes if you want to get something done, it is a darned site better to live with what you have got than to waste effort to change it if it can be lived with.

MRS. MADOFF: But can it be lived with? That is the question.

Now is it proper to turn over to the Corps of Engineers an enforcement kind of procedure, the permits under the 1899, which really are going to be the strong arm on a Federal — generally, I think everybody will say — level, that everybody has to comply and apply for a permit to really an Agency that has no experience in enforcement, because you do become an enforcement Agency? If U.S. Steel does not file a permit under the 1899 law with you, or they file it without putting an official name on it, as they have done — I believe they are going to change that — but isn't it your job to go after them? Isn't it the job of the Corps — and I don't mean here locally but generally — isn't this the Corps' job? Is that not enforcement?

COL. WEST: Yes.

MRS. MADOFF: Then I submit you should be sitting up here on this panel because we are trying to get — isn't this what you said several times today, Mr. Stein? — you said this is to get some enforcement and you belong here, we need you here.

COL. WEST: Mrs. Madoff, I don't think we have to get into a shooting match about that at all. I just ask you to wait until I make my statement, and you will see that I am seeking that, as I did at the last conference.

MRS. MADOFF: Well, I am just saying that if you are going to do the job you should be right here working with it.

But I must say in all due respect that I think asking the Corps of Engineers to play an enforcement role in water quality control would be similar to asking a butcher to do surgery. Just because the Corps builds dams on the river doesn't quality them to do enforcement under the 1899 Act.

Now I don't think you differ very much with that view. I think this is a job you have been saddled with that you didn't go out looking for.

COL WEST: I take exception to your simile.

MRS. MADOFF: You know, it is so close to home, that is the only one I could think of offhand.

MR. LYON: Mr. Chairman, I think Mrs. Madoff does have a valid point. The Corps, in fact, is an enforcement Agency, and if it is appropriate for enforcement Agencies to participate in enforcement conferences, he should be a participant in this conference.

MRS. MADOFF: Now I certainly would like to see a Federal uniform standard of water pollution control administered so that the 1899 permit system had some meaning. To that point, I would like to state that the American people are having a gigantic hoax perpetrated against them.

In our State -- and I am sure we are not unique -- we are presently having 1-1/2 inspections a year. Now, when I say a "hoax," I will tell you what I mean. I work in pollution 24 hours a day practically, and I have for almost 3 years now. Do you know I thought that those 1-1/2 inspections a year were really at outlets? I just learned in the last couple of weeks that that 1-1/2 inspections -- well -- and the joke of it all is that these inspections are not on the rivers, à la Nixon and Zavodni, but inplant inspection of facilities, usually at the time of application for a permit for a new company to operate and get a permit. The half-year inspection, I guess, means odd man out. If you are lucky, you don't get inspected that half time that year. And while I agree that inspection of the inside is the most important because this is where the correction in operation can stop the pollution to the river -- so I am not saying, no, we should not have that.

Incidentally, we are about to get staffing for the DER -- that is Department of Environmental Resources -- of 139 people once the funds are released. Listen to this folks, the 139 people will consist of clerks, filing clerks and typists, and a couple of engineers, and a couple of inspectors, and our two gentlemen from the State are still going to work in a corridor. They moved them out into half a hall with two desks. And what is going to happen here is that instead of having 1-1/2 inspections a year, guess what we are going to have? Two.

Now, as I said, the inplant inspection is very important. In air pollution when you go in and inspect from an engineering point of view, you can find out what is wrong and correct it. However, I think everybody here -- if we are going to be honest — we are all a little bit more realistic, and we want to know what happens to the 364 other days of the year when the outlets are discharging the poisoned wastes to our rivers? Who is out finding the violations? The answer is nobody. That is right. Inspections at outlet sources are done virtually never.

Now this is not just a criticism of our State. I am sure this is the same on a national basis.

The only answer to this is to have an immediate — and I don't mean next year or next month, I mean tomorrow — setting up of a lab using the present county lab, as Nixon and Zavodni did, and other available labs — and I know of some available — hiring of men, two men to a boat, to take constant grab samples and photos of sources, blind studies, reports, leading to legal action against all violators.

Somebody is going to say,"Well, that isn't as good. We can't get an injunctive order if you do it on the river, you got to do it in the plant." That's hokum because right at this moment there are some 80 citations against No. 21 stack at Clairton Coke Works, U.S. Steel — hear that, Mr. Dunsmore? — if you have enough of those, you can go into court on an injunction. Okay? That's a fact. And we have some 40 attorneys in GASP, and I think not all of them are crazy.

MR. STEIN: Well, that is the first good word I have heard today.

MRS. MADOFF: Keep listening, we will give you some more good words.

Now the way this could be done would be on a county basis. I mentioned this at the last conference. Each county would be responsible for the outlets with its boundaries.

I also have it on good information from those who have already done this kind of thing and who are experienced in it that you can take as many as 40 grab samples within a 4-hour period once you are on the river. Take 40 with 2 men in a boat -- that doesn't cost as much as one of these conferences. Take 3 boats, 2 mean to a boat -- you know 3 boats -- or even take 1 boat, 40 citations -- let's say they don't want to work more than 4 hours a day because they don't want to push themselves too hard. Multiply that by only 5, in a 5-day week, you have got 200 grab samples. And we have already heard everybody testify that you are going to find 20 percent in violation. Well, multiply that 20 by the $2,500 under the 1899 permit, and that is where I say you are going to pay for this. This is not going to be funneled back to the taxpayer, but to the polluter.

We are paying enough taxes. We don't need any more hardships perpetrated against the public. The money

Mrs. M. Madoff

should be paid for by the violator so that those who are guilty of breaking the law pay for it.

Now since this would probably take a year's delay in the enactment of a law by the legislature to use this fine money for this kind of a fund, unless you fine gentlemen sitting here can allot or make available funding for this urgent program -- and that is what I am asking you. You are talking about enforcement; you are talking about remedial steps. Here is the best one you are going to find today, if you really -- it is going to pay for itself; you might even make a profit and we can use it for some other controls. Let's get those men in those boats out at those sources right away. It will pay for itself, they are going to find who is in violation. We might even be able to find some of those sources that we haven't been able to get students to go out and find.

Now even if we have to wait a year to pass this law -- and I think we should go that route; we are going to have one of our legislators introduce such a bill -- why wait? There is money I believe in a Clean Water Fund, according to my conversation with Mr. Wesley Gilbertson.

Is that correct, Mr. Lyon?

MR. LYON: Yes, we do have money in the Clean Water Fund.

MRS. MADOFF: Now to get it going so we could have enough money just to start it — I know you have spoken to me and you have similar feelings that you would like to set this up.

MR. LYON: Yes. As a matter of fact, we had hoped to try to do this thing in cooperation with a number of organizations around the State, including the Federation of Sportsmen's Clubs and others. We would like to get what we would call river watchers — people to go out —

MRS. MADOFF: I am opposed to that diametrically and violently. You don't mind my disagreeing with you. It's just the way it goes.

MR. LYON: We have a policy in our Bureau, Mrs. Madoff, that says "Never argue with Mrs. Madoff." (Laughter)

MRS. MADOFF: I always said you were a smart man.

The reason I say that is that again, as I told Mr. Stein at the last conference, it is not the position of the citizen to go out and catch cold in a boat and find the sources for the lax job the EPA and DER are doing on finding these violations. That is your job, and it can be done very inexpensively by this method I have just outlined.

MR. LYON: I am sorry. I misunderstood your point. The problem I have is that we really shouldn't use the Clean Water Fund for this purpose, because unless we provide it with some steady income -- now the example that you gave I think is a very good one. If we changed our law in such a way that we could get our permit fees back into that fund, which is something that you know is very unpopular in State government these days because legislatures like to get all of the revenues into the General Fund; but if you can get this, then we would, of course, have a steady income for the Clean Water Fund. And then we could use the Clean Water Fund for this kind of purpose.

MRS. MADOFF: Now there is another way of getting the funds for this -- and I see that for some reason; my daughter had a 104° temperature and I was in a hurry and I didn't put this in here -- is that we could have a permit system issued to all companies who are going to operate in this area similar to restaurants, who must get a health permit every year, and really hit them with a sizable licensing fee which is renewable yearly.

I won't mention the name, but I got that from one of our polluters, and I thank them for this idea.

Now this is within legal bounds. We would not be violating any laws. And this might be a way of getting the money immediately.

MR. LYON: This concept is definitely sweeter in a sense than is the effluent charge that many people are talking about.

MRS. MADOFF: No. Then you get into litigation. I am saying: Do you want to operate in this State? You pay a licensing fee. That's constitutional.

Now, I am sure I am going to be very unpopular with the polluters, but I have been called "that woman" before.

This conference has a moral obligation not to close this conference without setting up an inspection program to protect our citizens.

I don't want to see you gentlemen -- and I think you are all good, fine, true gentlemen -- go back to your brain session, press session, tomorrow, and say, "Let's talk about certain things, but let's really---" Why don't you really come up with something that is remedial such as this program? Let's not wait until we get the sportsmen or GASP and a lot of other people in canoes doing the job for you. Let's say that you had to do it because if you didn't we are going to put you out on that river to get cold and wet in the wintertime, and you don't want to do it, so you are going to pay someone else to do it. Okay? And I am counting on you. So we catch -- whether it is mine drainage, pollution from municipal waste systems, or from the public-be-damned industrial companies. We want to find that effluent if it is polluting our waters.

And I say I charge you with finding a solution to this problem, not in a year but in one month. And if you need assistance, I volunteer to set it up for you. So the word today is "remedial."

Now that was on enforcement. Now I have one other little item to tell you about.

In August of 1970, the U.S. Steel Clairton Coke operation asked for a variance on 2-1/2 million gallons of waste liquor. At the time, because of a 20-year-old law that was passed saying you can't put it in the river, they were then using this waste liquor which comes from the production of coke to cool their coke, and nobody objected. Perhaps we weren't as cognizant of the dangers of pollution to the environment at the time.

As I say, over a year ago they applied for a variance because they were no longer allowed to put it in the air. Now seldom do I take the side of U.S. Steel or industry, but in this case I have to say since they couldn't put it in the air, and they couldn't drink it, they really had nowhere to put it.

Now we went to the Federal Government -- when I say "we," I say our Air Pollution Bureau here -- and we went to the State enforcement, and whether it was a lack of communication, semantics, or what-have-you, we got no help. So U.S. Steel bought itself an automatic year's variance.

Mrs. M. Madoff

Well, maybe that wasn't so bad, because a year ago we had no information about what could be done in coke quenching. A year later we have been able through our eight scientists in GASP to find this out, and we now know what can happen.

This year the Department of Environmental Resources appointed a steering committee, and that steering committee consists of myself, a representative of ALCOSAN from the Mayor's office, a representative of the State, ALCOSAN, and U.S. Steel. And we have been looking for a way for possibly this waste liquor to be pretreated to the state of the art, or pretty much to the state of the art -- what would be necessary -- to get an official document from Metcalf and Eddy, who were the consultants for both ALCOSAN and U.S. Steel, to possibly see if that waste liquor could go to ALCOSAN.

Now this is very important, Mr. Stein. There is no question in the minds of informed people that the least damage to the environment would be to put this waste liquor, after it is treated -- because it can be treated to be acceptable to the Ohio standards, even if we had to go the route of a very expensive process of activated carbon -- but somehow this waste could be treated so that it could go to the river. This would be the least damage to the environment.

From where I sit right at this moment I can't see that happening, from what happened here on the conversation with ALCOSAN this morning. Unfortunately I wasn't here, but it was reported, and I looked at your report. There is no way -- and I think you will concur -- that ALCOSAN can accept this waste liquor.

Now the thing I wanted to ask you gentlemen: you talk about regional enforcement; you talk about approach to environment. Here we have EPA, DER, and you have 2 Agencies under one umbrella. You have the water control people, the air pollution control people both working at cross purposes. Nobody is willing to take the leadership until you practically get -- you know how to get a horse's attention; hit him on the head -- until we really force the issue 1 year later, when is somebody going to start taking an environmental approach to pollution? They still can't drink it, and they still can't put it in the air. Can you tell me what the answer is? Because I will tell you how it looks from where I sit right now. I am going to ask the Advisory Board -- I am Chairwoman of the subcommittee to rewrite the laws for Allegheny County -- to allow U.S. Steel to clean their effluent to the state of the art and put it back in the air. Because I can't see anything happening for 3 years. At least we will have some improvement. Instead of that phenol being 100 percent, it will be 98 percent. I will settle for that for the moment. But we are still going to be in violation of our air pollution laws. And if they put it in the river, which you obviously will not permit, which would be the best place for it, when is somebody going to take the leadership on an environmental basis? And I think I have said enough.

Thank you. (Applause)

MR. STEIN: Thank you, Mrs. Madoff.

Col. West, do you want to make your presentation now?

COL. WEST: Do you want me to make it now?

MR. STEIN: Yes.

STATEMENT OF COLONEL EDWARD C. WEST,
DISTRICT ENGINEER, ARMY CORPS OF ENGINEERS,
PITTSBURGH ENGINEER DISTRICT,
PITTSBURGH, PENNSYLVANIA

COL. WEST: I am Col. Edward C. West, District Engineer for the Army Corps of Engineers of the Pittsburgh Engineer District. And where are you, Michelle?

MRS. MADOFF: Right here.

COL. WEST: You are not hiding, are you?

MRS. MADOFF: Never, never.

COL. WEST: I want to thank you for a swell opening. You will see how nicely it tied in with my remarks.

While you were talking, I took the opportunity to check over the telephone and get the latest status on our permit program, and I would like to go into that before reading my formal statement, and this time, Michelle, you have to listen because this is for you.

MRS. MADOFF: My undivided attention.

COL. WEST: You asked about an inventory, and I think the general gist of the answer that you got was that there never will be a complete inventory that we can say we can depend on for years and years, and I think you understand that.

You also harked back to the very delightful conference we had in my office almost a year ago now, if my memory serves me correctly, and I made some rather rash predictions at that time, being very new in this business, and being new at being a District Engineer. But I find that some of the predictions — if your memory of them is correct — not too bad.

I will give you some figures to show you that we do have a developing inventory at this time and perhaps this will be encouraging to you.

Through our own resources and the system that I explained to you that we were thinking of at that time, and through the list that we got from the Pennsylvania permit organization, we have contacted 2,643 firms in this area. Now when I say "this area," that includes not only the area that is of interest to your organization, but it includes parts of 5 States that my office is interested in.

Of this 2,643 we have received answers from 2,200, which is the best record of any district in the Corps of Engineers today. That is not to indicate that the program is going as well as it should, but I think we are doing pretty well here.

Now, of course, of those 2,200 answers, many of the companies were able to show that they did not need a permit. Their name was on the list for some indicative reason which turned out not to be — not to result really in a discharge — and therefore they are exempt from the program.

Of the 2,200 though we have 1,255 formal applications for permits, and these cover some 2,210 specified discharges. This is by count as of the moment; I think the number of discharges is actually much greater than that. We haven't even counted them all yet.

Col. E. West

For Part B, we expect somewhat under 2,000 responses, and we so far have 147 of them in with the deadline being tomorrow. This is running true to form with what happened with the July 1 deadline. The response on the first of July was not that good, but it picked up sometime during the 2 or 3 weeks following that.

Of the 1,255 permit applications, 508 of them had been processed by our office and forwarded to the Environmental Protection Agency, which is the next step in the process.

I think you were interested in how many permits have been issued so far in this area. The answer is none, and when the first one will be issued I have no idea. It depends on how long it takes EPA to process it and the State in due course.

That is all I have by way of data.

Now to continue with my formal statement. I appeared at the recent EPA Monongahela River Conference which was concerned with the water quality and associated environmental problems of the Monongahela River, and emphasized the mine acid drainage pollution problem. I was impressed with the thoroughness and quality of that conference's technical committee report, and by the extremely able and sympathetic manner in which Murray Stein conducted that gathering under difficult circumstances.

I am here today to make the same appeals; that is, for EPA consideration and evaluation of my offer to participate in the furtherance of your program, as stated in the EPA report on Interstate Pollution of the Ohio River, Pittsburgh, Pennsylvania area. I do this with the genuine feeling that the present, broader Corps sense of responsibility and desire for participation in remedial environmental matters places us in a strategic position of wanting to help, and having the capability to do so without any appreciable mobilizing time. As a public service Agency, now actively engaged in reestablishing its future planning, estimating, engineering, construction, and funding capabilities which are the strengths of our organization, we are inquiring as to where, in what capacity and how we fit into your enforcement endeavor.

My simple question is: Can we become a conferee? The answer I respectfully submit must be yes. You need our capability, and we need your expertise to assist us in our mission as a major water resource developer concerned about the environment.

And the very fact that Mrs. Madoff's remarks as well as Bill West's remarks on the effects of navigation structures and flow augmentation have such an impact on our operations and yours, it seems to me that we must be members.

While the recommendations in the EPA report do not itemize the manner in which pollution from sources in Pennsylvania are endangering the health or welfare of persons elsewhere, who are also in my District, we are generally in accord with the report findings and consider this effort as a distinct advancement toward achieving quality water in this area. In cooperation with EPA, the Corps is preparing wastewater management studies for five urban metropolitan areas at selected trouble spots around the country. These are rapidly being pursued. It may be that a similar regional wastewater management study is needed for this region in order to advance or to ensure the schedule of enforcement.

Finally, we are involved and will be for some time in river basin studies for the local rivers. These studies will include appraisals of pollution problems, means for abatement, and most importantly a time framing for needed facilities. Since there is no detailed implementation plan, either on the water quality standards or on the conference report, we again offer our help by calling for closer coordination between EPA and the State conferees of this conference, with the further recommendation that the Corps be dealt in as an active member, or at the least, as a Federal Agency with the interest and capability to help accomplish the objectives of this conference in a meaningful and timely manner.

In summary then the report is fine. It is a good start. We need action now. Complete and willing cooperation is vital to success in the ambitious deadline which has been suggested, and I think this has to be tied in with the recommendations that were made in the Monongahela Enforcement Conference which took place here just recently. Third, and most important, from my point of view: My office has the interest and the capability to help. We respectfully await your pleasure both on our previous offer concerning the Monongahela River, and my offer of today on the Ohio.

Thank you, Mr. Chairman.

MR. STEIN: Thank you, Col. West.

MRS. MADOFF: May I ask a question?

COL. WEST: Sure. I will even give you an answer if I can.

MRS. MADOFF: What position would the Corps take — what would you authorize the Corps to take on those companies who don't file their permits and you know that they haven't filed them? What legal action will you undertake and when?

COL. WEST: Michelle, I hope you will excuse me.

I find that question very difficult to answer because of a policy consideration. It might be better —

MRS. MADOFF: It's like taking the Fifth —

COL. WEST: Just a minute. I think it would be better if Mr. Stein answered that question.

MR. STEIN: Right. We have filed 35 cases already against industries which we believed had not filed permits. We intend to pursue that policy.

MRS. MADOFF: Did you know that the one in the State of Pennsylvania was a little obscure coal company they had to go through the list to even locate? What happened to all the big companies in Pennsylvania? Why didn't you hit any of those?

MR. STEIN: They may have filed applications.

MR. LYON: Mr. Chairman.

MRS. MADOFF: They have not, sir.

MR. LYON: Since this subject has come up, I would like to reenforce what Mrs. Madoff has said. The only company in Pennsylvania that the Federal Government has trained its big guns on is the Meadow Brook Coal Company in Lykens, Pennsylvania. It has a closed system. It has no discharge. It is in compliance with our requirements. It has a permit from us. It discharges into Wiconisco Creek, which goes to the Susquehanna River. The next navigation use of the Susquehanna River is the Millersville Ferry which carries about 3 cars a day. The Fish Commission is planning on stocking the Wiconisco Creek. The Meadow Brook Coal Company handles 75 tons a day of coal, which is about 4 truckloads.

There must be a more serious pollution violation in the State of Pennsylvania.

MRS. MADOFF: Somewhere there must be one.

Do you know of any yourself, Mr. Lyon?

MR. LYON: I can give them a list, yes.

MRS. MADOFF: Would you answer my question? Would someone answer it?

MR. STEIN: We would love to have that list, but you know -- I am glad Mr. Lyon referred to big guns. Usually they put other words before "gun" when they talk about me.

But I think we possibly think we have the big guns out here, and we didn't read a list of the companies which are contained in this report.

But I don't think they are --

MRS. MADOFF: You said they have taken 35 actions.

MR. STEIN: Actions, when we have discovered -- this was in answer to your specific question -- that people did not file a permit, we took action against those companies.

MR. LYON: Now, Mr. Chairman —

MRS. MADOFF: Mr. Lyon, I am sorry to — or Col. West, did you or did you not submit a list of those companies who have already filed their permits to EPA?

COL. WEST: We have submitted 508 permit applications to EPA.

MRS. MADOFF: The deadline is tomorrow. Is that correct?

COL. WEST: That is correct.

MRS. MADOFF: As of tomorrow there will be hundreds who have not filed, is that correct, or have not filed without an executive name on it which makes it null and void, is that correct?

COL. WEST: That is correct.

MRS. MADOFF: Will you turn over that list within the next 10 days to the official agencies — can you? — or within a reasonable time?

COL. WEST: Yes, we can.

MRS. MADOFF: Will you, sir, see that action is taken against these companies, not just 32 and one little obscure coal company in our State?

MR. STEIN: Mrs. Madoff, we will take those cases — if we find that a company did not file — and we will recommend that action be taken if that company, in fact, is subject to the provisions of the law.

MRS. MADOFF: Well, Col. West has already testified to that. We already have his word and I take his word on this issue.

MR. LYON: Well, let's just take one case.

Col. West, you said that the EPA report was fine. In the EPA report there is the fact that Homestead Works of U.S. Steel is discharging 450 tons of slag per day. If that is correct, would you take enforcement action against them?

COL. WEST: I won't answer that question, Mr. Lyon, and you know perfectly well why I won't. That is not evidence that will stand up in court. You have challenged those figures yourself.

MRS. MADOFF: Is this evidence that will stand up in court?

COL. WEST: You have challenged it. As far as I know right now, no, it is not. It looks like a bottle of soup to me.

MRS. MADOFF: I wouldn't want you to drink it.

MR. STEIN: Pardon. I think I am going to have to cut off these colloquies.

Colonel, would you continue if you are going to do that?

COL. WEST: I was finished. I was simply responding to Mrs. Madoff's questions. Do you have any further questions of me?

MRS. MADOFF: I have one, sir.

Would you agree that it would be advisable to have people at the outlets on rivers to catch those 20 percent of the time the companies are not in compliance putting out this kind of effluent which has been verified in a lab?

COL. WEST: You perfectly well know my feelings on that; we have talked about it many times.

MRS. MADOFF: You wouldn't.

COL. WEST: Yes.

MRS. MADOFF: This was from the U.S. Steel outlet yesterday.

COL. WEST: Thank you.

MR. STEIN: Thank you very much, sir.

May we have Sam Wrbican.

STATEMENT OF SAMUEL WRBICAN,
CHAIRMAN, ENVIRONMENTAL COMMITTEE
FOR THE CONCERNED TAXPAYERS OF ALLEGHENY
COUNTY, CREIGHTON, PENNSYLVANIA

MR. WRBICAN: My name is Sam Wrbican. I have been appointed as the Chairman of the Environmental Committee for the Concerned Taxpayers of Allegheny County.

In April of this year, the Allegheny Conservation Association had met with Col. West in his office for something like 3 hours. We had brought numerous things to his attention, and I am very pleased that the Colonel and his office gave us information to rely upon, the result of which here last week, the District Attorney of Westmoreland County brought six charges of violating the Pennsylvania Clean Streams Law.

There were other things that we brought to his attention; namely, dumping of slag in the Allegheny River. This is nothing unusual from what I can see. But the unusual part about it, we feel, as though is the slag is treated with fluorspar. Fluorspar contains fluorides. Fluorides have a tendency to build in your bone marrow. There is nothing unusual about this either, except that we have our drinking water treated with fluoride.

We brought this to the Colonel's attention, and he is looking into that.

It would appear to me that the Environmental Protection Agency who responded to our letter on the sanitary land fill would take the time and consideration to realize the fact that the taxpayer only has a certain number of dollars to spend on his taxes. If he is going to be burdened with additional taxes to correct something that the industry should correct, I think it is about time that the Environmental Protection Agency and the powers that be look into these matters.

I will cite another instance. There is a very, very complicated method of treating boiler water with phosphates, but yet when we brought this to the Colonel's attention, he was going to handle it, which I am assuming that he did.

But yet how many people are aware of the fact that the housewife is asked to use phosphate-free detergents when the power companies use it by tons calculated on the number of million of gallons that they use to protect their boiler tubes from corroding and building up calcium deposits.

This all bears out the fact that the people who have the knowledge are not taking advantage of their bookwork because these things are in textbooks, standards, that can be bought anywhere. The courses that are taught in colleges I think should bear out the fact that if you are going to do this, this will happen. So it would appear to me that there may be a different system available of generating electricity since water and other methods of generating it are gradually being used up to the extent that they have to use inferior quality.

I am not here to pick bones with anybody or anything like that. I am merely stating the fact that this is ancient history on cleaning up the thing, so why is it taking so long? This is all. Very simple.

Any questions?

MRS. MADOFF: Could we get a copy of your text?

MR. WRBICAN: I have no copy. I just talked from the top of my head.

MR. STEIN: I am going to have to again say we are going to have to insist on the rule. We will let anyone speak and they can take their turn as many times as they wish, but we are not going to be able to take questions from the floor, because if we give that privilege to one person, we are going to have to do it to all. Only the conferees can ask questions.

MR. WRBICAN: I have the respect and admiration for Col. West, like I told him in his office, that I was after his office since the 1936 flood, and I am here today.

Thank you.

MR. STEIN: Thank you.

We will recess for 10 minutes.

(Short recess.)

MR. STEIN: Let's reconvene.

Pat Newman.

STATEMENT OF MRS. PAT (JOHN B.) NEWMAN,
PRESIDENT, GROUP AGAINST SMOG AND POLLUTION,
PITTSBURGH, PENNSYLVANIA

MRS. NEWMAN: I am Mrs. John Newman, President of GASP, Group Against Smog and Pollution.

I would like to begin by trying to put our water pollution troubles into some sort of perspective. It has been pointed out that the whole problem of dirty streams and rivers is something we have slipped into with the use of city water systems in cities.

As water became easily available, we began to use it to carry away our organic wastes. As people began living closer and closer together, the wastewater from one settlement because the drinking water of the next.

In the last 50 years, our industries have expanded their waste-producing activities many times over so that their contribution to drinking water downstream is more than just nuisance, it is lethal.

David Dominick, who is now with the EPA, pointed out in a recent radio interview that, "Industries have, in recent years, carried on their environmental activities primarily with their public relations departments," not with any real commitment in the way of research or abatement equipment.

GASP's experience here leads us to the same unhappy conclusion in many cases. Furthermore, it is plain that we are still naive about cleaning up in this country. We think that a person can dispose of an unpleasant waste and it will just somehow go away. That is, we think we can burn sludge; we can waste energy resources, in order to waste some very valuable land resources. Now, this is a principle which we are going to have to get away from -- and fast.

Barry Commoner recently explained why this sort of planning is bad planning. He said, "The water life cycle of free chemicals turning into organic nutrients and back again into free chemicals, has been disrupted because we have added large amounts of land chemicals to the water cycle. We have used materials from the land life cycle and messed up the water life cycle."

Now, because the land life cycle is also distorted, we have had to manufacture nitrates and phosphates and add them to the land. But since they are highly concentrated in agricultural use, they run off into the streams and foul things up even more.

Mrs. P. Newman

Our short-sighted attempts to correct manmade deficiencies have caused more and more disruptions of the water life cycle. Phosphate and nitrate eutrophication in waterways have been accelerated especially with extensive irrigation. Now all of this is an illustration of the need for adequate planning to solve water pollution problems.

We must give new attention to the old adages about thrift. It also reminds us that at our present rate of pouring poisons into the land and water, we have no time to spare in getting the planning done and the solutions under way.

The Scientific Committee of GASP will caution against the waste of valuable resources by naively disposing of them. It will caution us against assuming that people should pay for cleaning up industries' mess. The people should not have to pay for this, in our opinion.

I wish to pass on to you some of the questions citizens are asking about this enforcement conference, and about the regulatory agencies participating here.

The citizens want to know, for example, when the State and Army Corps of Engineers will finish following up on the many discharge permit applications due under the new permit program. We have heard some answers to this already.

We do understand that many of the permit request forms are being presented without signatures of responsible individuals.

I have here a clipping from the New York Times, September 26, in which they speak of U.S. Steel Corporation filing for applications for permits from its plants, but refusing to sign the part of the application certifying that the information is true. It also says that the application is required to be attested to as truthful by the signature of a top company official. This is the signature that U.S. Steel has refused to give.

"A signature" — the clipping goes on — "would make the official directly liable for a jail term as well as a fine."

Now we would like to know when the permit applications which have been turned in unsigned will be turned over to the U.S. Attorney General's office, and we want to know if the citizens can help in any way to expedite this matter?

Further, we understand that about half of the known polluters have applied for permits. We ask when will the known polluting plants be inspected? How soon will those hiding from the law be put in jail or be enjoined from further discharge into the streams?

Now Walter Lyon has said here that the Department, the DER, did do an inventory of sources in Philadelphia. We say Philadelphia-Schmiladelphia, we live in Pittsburgh.

We want to know how soon a special fund can be established in Pennsylvania — Mrs. Madoff has touched on this -- so that money from fines can be used to help pay for this legal work and scientific work and sampling work which is so badly needed and has been for so many years.

We understand from Walter Lyon that only 2 percent of the Federal water quality budget goes to the States for enforcement. Therefore, we ask how soon more money can be returned to the States for inspection and prosecution of violators. And we want to know how many discharge permit forms, which Col. West says he received, were signed. What does Col. West mean when he says that he made a study and it is rapidly being pursued? He didn't define "rapidly being pursued," and our experience has been that such words often mean it will take 6 more years. We don't think we can wait that long.

Mr. Stein says that conferences and enforcement actions have been the least expensive ones that we have.

Now sometimes it looks to us here in Pittsburgh as if that is because we haven't had any enforcement to begin with, so it is not too expensive.

Now we have a question too of the Federal report on page 7, recommendation No. 3. It says there that the EPA recommends the treatment of organic wastes. It does not specify in this recommendation treatment by whom, and who should pay for it. I think this should be made very, very clear.

We have to decide who will pay for it. We have to decide whether this is going to be a capital expenditure of industry, whether it will be through bond issues locally, and then industry pays through a service charge, therefore gaining tax benefit. This has to be made clear, and I think in this conference it is time to do it.

Now, as shown by their decision in the last election regarding the constitutional amendment on the environment for Pennsylvania, the citizens of Pennsylvania are solidly behind clean water and clean air.

Officials who talk a great deal but act very little are an affront to the public trust. It is to be hoped here that we will see a great deal of action including inter-agency cooperation and firm answers to the questions that we ask of you today.

Thank you.

MR. STEIN: Thank you, Mrs. Newman.

Any comments or questions?

MR. LYON: I have a brief comment.

Mrs. P. Newman

Mrs. Newman, you and many others here have talked about the 1899 permit system, and I want to briefly say that in our opinion the 1899 permit system is an unnecessary duplication of the existing State permit system. The State permit system, in fact, is much broader than the Federal one. It goes much farther than the Federal system because it includes municipal discharges; it includes treatment plants; it includes, in fact, many things that the 1899 system does not.

The most serious problem about the 1899 system is that it is a duplication and that in order to force the issue of 1899 permits EPA will come to us and ask us to take our time to re-review for a second time all of these permits, all of these cases that permits have already been issued to.

That keeps people out of the field; that keeps people from doing the thing that Michelle Madoff wants us to do and that is to be out in the field checking on discharges. We will be doing more office work rather than less and we are very concerned about that, because the duplicate permit system is very wasteful.

We think that two permit systems are no better than one.

MRS. NEWMAN: I think I should second that if and only if this system would produce something in the way of inspections. Now I am rather dubious about this, but I think whatever system — even if it is people on horseback, Paul Revere style — whatever you can do to get out there and inspect those rivers, we are all for it.

MR. LYON: Well, the problem is, Pat, that it will reduce the number of inspections because it will greatly increase the amount of office work we have to do and the tremendous amount of paper work we have to wade through in cases where we have already issued permits.

Now I am not trying to say that all our permits are sacrosanct; a lot of them probably should be reviewed and should be tightened up, but by doing duplicate work we are not really making much headway. We don't see much point in having two permit systems.

MRS. NEWMAN: We are all for you wading through pollution and not permit forms, so I am with you.

MR. STEIN: Any other comments or questions?

Miss Marilyn Janocko.

STATEMENT OF MARILYN JANOCKO,
LEAGUE OF WOMEN VOTERS, ALLEGHENY COUNTY
COUNCIL, PITTSBURGH, PENNSYLVANIA

MISS JANOCKO: My name is Marilyn Janocko. You

Miss M. Janocko

almost made me mispronounce my own name!

I represent the League of Women Voters, Allegheny County Council. The League has actively been working for improved water quality for 16 years. Our concern today is both for the people of this area and the people downstream who find the waters of the Ohio increasingly polluted despite the recent enforcement efforts, though every citizen is beginning to feel like a patient on the operating table listening to a team of surgeons debate how to proceed with the operation, and who is in charge of it, and even who is going to pay for it.

League members have steadily supported implementation of the Federal legislation which provided financial aid for sewage facility construction and required setting of State standards for interstate streams. Our members have been disappointed with the results. We are convinced that there must be significant changes in the Federal and State attacks on water pollution. We find the present Federal and State water quality programs too small, too slow, too weak, too disorganized, and too underfinanced.

The Federal program must commit more funds to the fight for improved water quality, must enforce the water quality standards and shorten the time allowed for compliance. Money as always is the crux of the problem. While the League believes in and works for State matching funds, we think that shared finance for construction of treatment plants and interceptor sewers will fail unless Federal funding is substantially increased. Senator Muskie has introduced a bill proposing the authorization of $2.5 billion a year for 5 years, and we think this is certainly not too much to authorize.

In addition to funds for treatment plants and interceptor sewers, Pennsylvania needs -- and badly -- more money for water quality inspection personnel. Perhaps the following example will illustrate this need. We have already heard examples of this today. Let me repeat it again.

The Pennsylvania DER has 9 engineer inspectors assigned to this 9-county region within the Upper Ohio watershed. Each inspector has approximately 210 sources to inspect, some with as many as 40 discharge pipes. These sources include industries, mines, water treatment plants, and sewage treatment plants. According to the Department of Environmental Resources, a plant's discharges will probably be inspected only on an average of once a year. All that can be determined from this sort of inspection program is that on 1 day each year a company is in compliance. With more inspectors it would not only be possible to make inspections more often, it might even be possible to make unannounced inspections. It seems that companies are quite aware of when the inspector is coming, we understand.

Under the recent implementation of the Refuse Act of 1899, companies must apply for a permit from the Army Corps of Engineers to discharge into an interstate stream. The permit application requires that a company disclose the nature and amount of its effluents. Unfortunately, none of the agencies that have the authority to inspect have the inspection personnel necessary to make the spot checks that we think would be necessary to ensure accuracy. All we have to rely on is the company's good will. Although this should be enough, our experience with air pollution indicates that sometimes it is not.

Therefore, unless Pennsylvania has more inspection personnel, so that spot checks on permit application disclosures can be made, and so that regular inspections can be increased, all the vast paper work concerned with the Corps of Engineers permit system will be useless, and the permit system itself will deteriorate into a "permit to pollute system."

It is distressing to remember that 10 years ago when conservationists raised questions as to whether the new locks and dams on the Ohio would be detrimental to oxygen levels, virtually all officials — State and Federal — said there would be no problem, and yet this morning there was general agreement that the permanent locks and dams on the Ohio are an inhibiting factor in improving water quality.

Considering this, we urge that serious consideration be given now to long-range comprehensive planning to prevent a critical thermal pollution problem. The comprehensive study of the Ohio River Basin, which was completed a year ago, stated that by 1980 the problem would be critical; that once-through cooling systems would probably need to be phased out.

Frankly, it is not at all reassuring to hear today talk of plans limited to 2 and 3 years from now when one considers the number of years involved in defining specific source problems, engineering, and construction.

Crisis planning and conferences accomplish relatively little and satisfy no one but a deliberate polluter who is made happy by more delay.

Furthermore, we urge the EPA to adopt Federal effluent limitations as part of the water quality standards, setting forth the minimum acceptable levels of treatment and control, the allowable amounts of constituents and the permissible character of effluents discharged by industries or municipalities. Only after such effluent limitations become a part of the law can a really meaningful State implementation plan be developed by the Pennsylvania DER, as Mr. Ruckelshaus recommends.

In conclusion, the League of Women Voters urges you gentlemen, you conferees, to please work for agreement among yourselves on specific steps needed to improve the water quality of the Upper Ohio. We urge that a timetable for compliance by municipalities as well as industries be set up. And, finally, we exhort all of the agencies and levels of government involved to work together somehow to put teeth into our enforcement programs.

Thank you.

MR. STEIN: Thank you.

Are there any comments or questions?

If not, thank you very much.

David L. Marshall.

STATEMENT OF DAVID L. MARSHALL,
COORDINATOR OF ENVIRONMENT,
PITTSBURGH, PENNSYLVANIA

MR. MARSHALL: Thank you, Mr. Chairman.

David L. Marshall, Coordinator of Environment, Pittsburgh.

D. Marshall

This morning we were treated to the miserable spectable of sniping by the members of the panel — one as against another — obviously a Federal-State controversy. Now this clearly isn't good enough, and perhaps in order to explain how it has come about, we need to look into one or two things.

I agree with Mr. Lyon — I shall criticize his Department later — so let me say now that I agree with Mr. Lyon that the addition of a Federal permit program to a State permit program insofar as the State permit program concerns industries' discharges is a monumental incoherence. The sheer man-hours required of the State to give the Federal Government the information it requires to do this has been variously estimated at anything from 200 to 300 or 400. Perhaps 100 people would be required to do this — ridiculous really.

Why has this come about? As we all know, the ballyhoo about the environmental matters that is sweeping the country leads to some crazy results. And one of them is that Congressman Reuss' Subcommittee thought that it would be a good idea to revive the Refuse Act of 1899, which had been a monumental failure in its implementation. And given that, President Nixon thereupon issued an Executive Order saying: then we will give it the Texan treatment and as soon as the Federal Government gets into things — just as President Johnson introduced a planning program on the budgeting system not in the office of the Bureau of the Budget but in all of the Federal Agencies — so President Nixon said let us now have the Army Corps of Engineers collect information from all industries and plants across the country on what kind of substances it is putting into the waterways, where, in what amount. Fatuous, you see!

And the practical consequence locally is that having asked industries to provide this information to the Corps, and having set a deadline for the relaying of this information on the part of industries to the Corps, the local laboratories, etc., are swamped.

Now, the problem this morning obviously arose because the Federal report that was put out was disruptive in nature — much of it, I think, unsubstantiated and perhaps not substantiable. It was a mishmash of effluent information compiled over several years from different sources. It made no attempt to suggest to what extent the more bizarre polluters were already being tackled by the State.

Now this is so to say opening a conference, calling a conference, and coming with your sword drawn. And I think that the Federal Government ought not to have adopted this position. And naturally having done so, the State is obliged to reply through the rather witty medium of Mr. Lyon, and they got what they were worth I think from him.

Now then, let me go on to the State. There is no doubt, and it is quite clear by now to everyone in this room I am sure, that the State's enforcement of the Clean Streams Law is quite sluggish. And what I have to say concerns rather industry discharges than other matters. We have heard the figure bandied about of 1 inspection per plant per year, let alone 1 inspection per pipe per year.

I have with me a very neatly drawn map which concerns the U.S. Steel Homestead Plant. Now this particular map shows 54 outfalls. Perhaps half a dozen of them are Munhall Boro sewer, etc.

So if we are talking about an inspection and enforcement system, we are obviously talking about prodigious numbers of people — particularly if we feel, as some of the environmental groups appear to feel, that we must have continuous monitoring by people out on boats. This obviously is absurd also.

Since I have criticized the lack of liaison between the Federal Government and the State, let me now modestly say that perhaps liaison between environmental groups in Pittsburgh is not all it should be, and therefore state publicly that "Environment - Pittsburgh" has now put together a team consisting of 16 students from the universities with 4 or 5 supporting professors, whose function will be to decide which industry discharge outlets they intend to look at, and to sample and test the results. These results will be made public to industry, to the Corps of Engineers, to the Department of Environmental Resources, and to the Environmental Protection Agency.

So, okay, we do this. But what does it mean? The only long-run solution, if indeed there is such a thing, is for industry automatically to monitor itself and for this automatic monitoring to be seen as a normal part of the costs of doing business. Any attempt at enforcement that involves large numbers of people out on boats on the river is really a rudimentary way of enforcing a law that belongs in the days when people wandered around the woods naked with woad-painted faces. It must be automatic monitoring eventually.

Now then, the State put out a report clearly intended -- at a previous conference -- "Water Quality Management in the Monongahela," and I am sure you all saw it, August 1971. Now this is the kind of report that comes out when the State and the Federal agencies have arrived and have become locked into an adversary position.

D. Marshall

It is a report that -- and again I refer to industry discharges -- that claims that 93 percent of the 193 plants in this region meet standards.

Now I think that if pressed State officials, under rather different and nonpublic circumstances, might allow -- as how almost 50 percent of the plants in Allegheny County are suspected of not being in compliance with the Clean Streams Law -- quite a different aspect. But I believe, therefore, you see, that these nasty things that are happening here in public can only be resolved if the agencies responsible get their heads together, and we would like to help in this.

The students and the professors I mentioned will be quite happy to sit down and talk with the State, with Col. West, and with Mr. Stein, and discuss an appropriate role for them in this whole business. Meanwhile they are going ahead anyway, because we know what needs to be done.

Mr. Stein has suggested that one important result of the conference would be to set up effluent standards, if I understood him correctly. I believe this to be nonsense. The whole question of setting effluent standards for industry is obviously very much more complicated than anything we can hope to achieve with a room full of people and an adversary state of affairs at the table -- an enormously complex matter.

D. Marshall

I believe that the most fruitful thing that could come out of this conference is for the Federal and State Agencies to bury the hatchet, to accept Col. West's plea that he be brought on board, and to see whether or not it wouldn't be possible for the ingrained bureaucratic hierarchy to cool it, to loosen up, and to have some of the Corps people, which West now says are ready and raring to go, go over and sit and work in the State's office, and bloody well help them get this information together that is needed for the Corps to implement the Corps' permit program. Why should the State have to do this?

At the same time, I think that when the Federal Government is requiring the State to give information, it must be conscious of the strain this places on the limited resources. And if this conference gets to George P. Schultz and the Bureau of the Budget in Washington, or to our rather beknighted appropriations committee in Harrisburg, gets through to these people with the message that this job won't get done without the funds and manpower, then perhaps it will have achieved another significant purpose.

Now the point I think I would like to go to now -- and there aren't many more, I am glad to say -- is that suppose we have a sustained sampling and testing program which eventually leads to a state of affairs where we feel fairly confident that we know on the average how much of what kind of effluent is being put into the rivers where. Then comes the question: Is this adequate? That clearly raises the question what ought the standards to be? Now several of the standards that the Commonwealth has laid down ostensibly on public health grounds, it would be very difficult to defend on public health grounds.

The whole question of what the standards ought to be needs thorough examination.

The meaning of secondary waste treatment as it applies to industrial discharges is obscure at best. We believe, however, that there ought to be effluent standards clearly laid down. The present state of affairs is obviously unsatisfactory in the Commonwealth. There exist ambient water quality standards with a handful of effluent standards. The only way in which the ambient water quality standards can be translated into effluent standards, which is important obviously if you need to know whether or not somebody is breaking the law, is through the medium of a diffusion model which is in a black box in Mr. Schoener's office in Harrisburg. And I think that we might all agree that the present state of the art of diffusion modeling is much too crude for one to say that it can be relied on. We need effluent standards.

D. Marshall

The State needs personnel. We need automatic monitoring, and the State, I think should require of industries that they come forward with some information concerning the costs of recycling.

As we all know, in the case of U.S. Steel at South Chicago, they -- U.S. Steel -- have complied with the standards laid down by Illinois. And this is a case which has received not nearly the publicity it deserves. The Attorney General of Illinois came along and said that although U.S. Steel, South Chicago, had complied with the standards set by the State of Illinois, this in his view was not good enough and he wanted 100 percent cleanup.

U.S. Steel demurred and said it wasn't possible, and several people including a local consultant, argued that it was. And rather than be caught in court with its pants down, U.S. Steel decided to agree to the proposed plan, and as a consequence has committed itself to engaging in an expenditure for 100 percent cleanup in South Chicago of $8 to $10 million -- I think it is -- over the next 10 years -- capital investment, plus $1 million a year operating.

Now this is the kind of question that needs to be faced around here. What are the social costs of continuous and in some cases ostentacious industrial pollution in terms of recreation, in terms of esthetics, in terms of lungs, in terms of what one drinks? What are the social costs?

Long since gone are the days when an industry can stand up and say: "I do not know what the social costs are. Unless you can show me, I will not be convinced that my behavior is bad."

These things have to be worked out, and all this is going to have to be done. But it obviously cannot be done unless the State and Federal Agencies at least agree on who shall do what by when.

And I hope what I have said may provide some instruction -- would it be too arrogant a word? -- in that respect.

Thank you. (Applause)

MR. STEIN: Thank you, Mr. Marshall.

MR. MARSHALL: There may be a question or so.

MR. STEIN: There may be.

Any comments or questions?

MR. LYON: Yes. I want to thank Dave for his very constructive statement, because I think it helped to clarify a lot of important points.

A few comments on what Dave has said. Effluent standards. In our present permit system, before any permit is issued, our basin engineer, who is responsible for maintenance of the water quality criteria which have been adopted and approved, must look at the effluent requirements and establish them before the engineers go to work to design the treatment facilities. So that we are now, in fact, in the case of every permit, establishing effluent standards.

In connection with the monitoring and the continuous monitoring question, I think this is a very important point. I think we are going to have to move in that direction, and here, by the way, is an area where EPA has helped us. EPA has given Pennsylvania a demonstration grant to show how one State can set up a data system. I think the grant up to this point has been about half a million dollars. This year we plan to design what we call a plant operations control system, where every plant in Pennsylvania will send us their monitoring data, and the computers will be programmed to know what the performance characteristics of that plant and the effluent requirements are in order to monitor for us the thousands and thousands of discharges. That still will not substitute checking and taking samples and inspections because we have to make sure that the reports are correct. But at least we will have some way of effectively and efficiently looking at the effluent data.

One more point about students. Dave has been very instrumental in encouraging students to help us and we welcome this. Many kinds of students are already helping us. Students at Carnegie-Mellon 2 years ago helped us with an important water supply problem in this area in the poverty community — two poverty communities. Law students at Penn last year and again this year will be helping us with the enforcement tasks.

MR. EICHBAUM: Also at Pitt.

MR. LYON: Also at Pitt. I didn't know that.

Students from Bucknell in the biology field have helped us make stream studies.

We welcome help from students and we will welcome the kind of help that Dave will be giving us through students who want to help us with our job.

MR. MARSHALL: Thank you.

MR. STEIN: Any other comments?

Thank you very much.

May we go on with your presentation, Mr. Lyon?

MR. LYON: Thank you, Mr. Chairman.

Before I make my presentation, I would like to put a few things into the record that are relevant to this conference and to some of the discussion that has gone on.

I have used the Jones and Laughlin schedule as the example of the kind of schedule that is available in our records to you, and I would like to introduce --

MR. STEIN: I am sorry. I did make a commitment. May I interrupt? Mr. Wald, I am very sorry. And I told you about that before.

Would you come up and make your statement?

MR. LYON: Leo is a busy man building a treatment plant.

STATEMENT OF LEON WALD, EXECUTIVE DIRECTOR, ALLEGHENY COUNTY SANITARY AUTHORITY, PITTSBURGH, PENNSYLVANIA

MR. WALD: I am Leon Wald, Executive Director of the Allegheny County Sanitary Authority. I have only a few brief comments to make. I didn't have a prepared statement but listened intently to what took place this morning and so far this afternoon.

You would think from reading this Federal report that the Sanitary Authority has taken no steps to upgrade its treatment plant. We received an order from the State in March 1966 to go to secondary treatment, and we complied promptly. We engaged engineers to prepare the plans, and as soon as the plans were completed and approved by the State and Federal authorities we proceeded with construction.

L. Wald

We have completed to the extent of 2/3 or better a $50 million construction program. There is no mention of that in the Federal report. All of the data cited in the report would give the impression that the Sanitary Authority is the biggest municipal polluter, instead of the biggest preventer of municipal pollution on the Ohio River.

This Authority serves the city of Pittsburgh, and 74 surrounding boroughs and townships, with a total population of 1,200,000.

We are complying with the law; we are not violating the law.

Let me go back a few years to inform those of you who don't remember, perhaps because I was with the Authority almost from its inception in 1946. We built a $100 million collection and treatment system in this area virtually entirely with bond proceeds that we are paying off. We received a total Federal grant of $90,000 -- and that was purely accidental -- less than 1/10 of 1 percent of the construction cost.

We proceeded to comply with the State's order before we were assured of adequate State or Federal aid. We have always been treated differently from everybody else, and it is a pleasant feeling to find that Mr. Walter Lyon is now on our side. And I must say that he did an excellent job of pointing out the shortcomings in this Federal report.

Now if you look at the recommendations of this report, you will find again that the Allegheny County Sanitary Authority has been singled out for special, in my opinion, unfair treatment without waiting to get the facts, without determining whether any higher degree of treatment than what we will be providing with our secondary treatment is necessary or even desirable.

The EPA is recommending a much higher degree of treatment than the order we are now complying with. We don't get a chance to comply with an order voluntarily until we are served with new orders. And I say that this is not a trifling matter. I know it is easy for bureaucrats to issue orders, and they seem to get a particular pleasure out of cracking the whip and demanding that people jump through the hoop.

I would like everybody involved in this problem to wait until we complete our secondary treatment project, put it into operation, and see what the results are, and what the condition of the river is before ordering us now years in advance to proceed at once with the expenditure of additional millions of dollars for unneeded, in my opinion, further treatment facilities.

Somebody has to pay for this, and it is about time that we did first things first. We have always felt that the Sanitary Authority is always the victim of special unfair treatment, and we find ourselves in that position again. Everybody else has to provide 85 percent reduction; we have to provide 90 percent. That isn't all. The State order says that our effluent shall contain an average of 60,000 pounds of BOD per day. The EPA says it should be 20,000. Why? On the basis of somebody's theoretical calculations using a sharp pencil, and in order to make the EPA look like a better enforcement Agency than the State. And I think the people in this area whom we have tried to serve economically and efficiently should demand to know whether any such order as this is called for at this time.

All I am asking is not that we should not be required to go to additional treatment, but only that the enforcement officials wait until they know whether that is necessary.

Thank you.

MR. STEIN: Thank you, Mr. Wald.

Any comments or questions?

I think in fairness, on one of your points, on the previous construction you had of $100 million, the Federal Grant Program, at that time, was limited first to $250,000 a project, and then $600,000, and the Congress designed it to help small communities, and not larger communities, and I think the experience of construction in that period and the percentage of Federal participation is about the same as yours.

I inquired how you happened to get that $90,000. I was even surprised at that.

But, generally speaking, under the previous program, large cities didn't get any Federal funds. It was just the smaller ones, and in recent years the law has been changed on that.

MR. WALD: Yes. May I just add this one word? We could have dragged our heels and waited until Federal aid was available as many other communities did. We didn't do it. And it appears to be the outcome that those who comply with the law voluntarily and without being threatened and forced to do so after extended delay are penalized for having been the pioneer. And I think the people ought to know that.

MR. STEIN: There is one more point, and I hope we can get together on this, because you repeated a point several times, and maybe this needs discussion to get together on it.

But this question of waiting until you build your existing facilities and then let's see what happens to the water, and then we will see if you have to build some more, is the kind of statement we have had from numerous municipalities and industries in the country.

Generally speaking when we do that this is the kind of program which has always led to too little and too late.

Now I have no grief for any number of what you have to do. But I would suggest to you, Mr. Wald, if we are ever going to get ahead of this program -- and I think the technical people have to come up with the numbers and we have to come to an agreement -- one way or the other we are going to have to rely on someone with a sharp pencil who is going to make a prediction. That philosophy of just building the existing plant and saying it isn't good enough keeps us constantly coming back, and we never get the waters clean. I hope we can come to an agreement with you people and the State on what is a reasonable projection for the future, so we can all sign off on the kind of reductions you need to have clean water.

It has been amply demonstrated by the money you have spent and the activity you have put out in the past that you people want to do a reasonably good job and do what is right. But I believe we all have to get together and be sure we have a clean stream.

MR. WALD: I might say, in that connection, that the engineers of the Federal Government and the State and our own consultants agree that the degree of treatment that we will be providing will be adequate and it will not adversely affect the condition of the Ohio River. There is no limit to the degree of treatment that is theoretically possible if you want to spend the money. I am saying that it is impractical and uncalled for at this time to require us now to go to a degree of treatment that we may or may not be able to accomplish with our new secondary treatment plant before we see whether the degree of BOD removal and pollutant removal that our new plant will accomplish is satisfactory. Because it is going to be very much better than our present performance — very much better.

MR. STEIN: Again, Mr. Wald, of course, I know what you are saying, and I don't see that you and Mr. West technically were necessarily far apart or apart at all. But what I am doing, sir, is suggesting that we have to, I would hope, come to an agreement whether water quality standards were going to be met when your plant is completed and in operation, and not go with the notion that we were just going to let you finish your present program and then operate it, and then go back and look at that river and see if we needed any more. This has been the history of pollution in this country because we have done that.

I am making no judgment that you need any more or any less at the present time. But what I am suggesting: I would hope, as part of this conference procedure, we can all sign off on a program that we can agree on now of what will be the needed degree of treatment to protect the river.

MR. LYON: Mr. Chairman.

MR. WALD: Mr. Chairman, all I am asking now is that you do not make your recommendation into an order before you consult with the State and with the consulting engineers of the Sanitary Authority.

MR. STEIN: I can assure you that will be done.

Who are your engineers?

MR. WALD: Metcalf & Eddy of Boston.

MR. STEIN: Again, we are delighted to talk to them, and we have in many, many cases.

Yes.

MR. LYON: Mr. Chairman, you seem to be reiterating a point -- I don't want to belabor this -- that I have tried to make this morning, and you seem to be glossing over it. And I assume you are speaking for EPA and not the conferees. And that is the fact that EPA is required by Federal regulation to consider the question as to whether or not a project will meet Federal standards. Federal standards have been established; they were established at the time when EPA made its grant award.

EPA made its grant award -- I am going to ask that it be made part of the record -- and the approval implicitly indicates that EPA has considered that question and has found that the project does meet Federal standards.

What is happening today is that you seem to be going back on that original decision. What you are really saying is that we think EPA made a mistake. We shouldn't have given that grant.

MR. STEIN: Mr. Lyon, I don't know that I am speaking for EPA, and I don't think I am glossing over the point.

MR. LYON: Well, who --

MR. STEIN: Now, just wait a minute and let's hear what we are saying.

I think I listened to this very, very carefully.

The point is we were talking in terms of the kind of treatment and of 60,000 pound BOD reduction.

The indication we got from Mr. West was the 60,000 pounds was never mentioned in the Federal grant award. His view was, given that plan, with proper operation you could get down to the requirement he thought was necessary. I think this is a factual case. I think these facts were presented very clearly here this morning. I don't see that there is any glossing over, except if you keep repeating that 60,000 and say it is implied, when Mr. West says it wasn't implied, by the mere repetition of it and what passes for wit in Pennsylvania that makes it any truer.

MR. LYON: Well, the fact is that the 60,000 pounds was a part of the State submission to the Federal Government. Now if you choose to ignore it that is one thing, but it was part of it; it had to be.

MR. STEIN: All right. Mr. West has made his statement and we nailed that down pretty carefully. That is why I pointed out -- and, Walter, I don't mean to push this, but I specifically made a point several times that what I consider the key issue was the difference between this 20,000 and 60,000. I don't think when I specifically brought that up for the attention of the conferees as one of the issues we had to grapple with, that that in any manner or means can be considered as glossing over. This is not the glossing over. I think this is a key to our resolution at least of the municipal treatment problem again, and we have to get with it. And I hope you and our technical people can get together on it.

MR. WALD: Mr. Chairman, I can't go along with your statement. Before we began construction we submitted the engineering studies and reports showing design parameters, and the Federal authorities in Washington studied and approved those, and it was on the basis of that approval that the Federal grant was made. I don't see how it can be said now that the Federal authorities in EPA's predecessor Agency were not aware of what our plant would accomplish in the way of BOD reduction.

I might say in that connection we expect to accomplish a much better result than that, but to order us now to go to 1/3 means that perhaps we must now get ready to spend millions of additional dollars unnecessarily.

MR. STEIN: Again, Mr. Wald, what I am doing is trying to summarize the statement made by our expert, Mr. West, who spoke.

Now, as I understand Mr. West, the 60,000 was not included. But I think the key important point that Mr. West made, as I understood him, was that his requirement for the 20,000 pounds was needed if the water quality in the river was to be met and the standards were going to be met in the river. Otherwise, you would not have a clean river.

Now the reason I perked up when I listened to Mr. West is I have been around to project after project in the United States, construction after construction, when hundreds of millions of dollars were spent, and the people looked at the water and the water wasn't quite as clean and as clear as what they expected, and it fell short.

Using his pencil if you will, Mr. West is saying that he believes you have to get a certain amount of discharge if you are going to get this water quality.

What you have said is that you want to run your plant first. Then if the water quality is not met and we find that out, we will consider upgrading it.

I think I understand your positions very well. I hope that we will consider these positions and try to come out with a program that we can all sign off on.

MR. WALD: Well, I would be repeating myself but I have to say once more —

MR. STEIN: I understand.

MR. WALD: — that if Mr. West, whose decision apparently was followed in this recommendation, will first consult with the State engineers and the consulting engineers of the Sanitary Authority to determine whether that is necessary at this time before the EPA issues any orders, then I will be satisfied because I think that standard is going to be changed.

MR. STEIN: By the way, let me ask you are the Metcalf & Eddy men here now, Mr. Wald?

MR. WALD: Yes, Mr. Thomas, the Senior Vice-

President of Metcalf & Eddy is here.

MR. STEIN: Yes.

And I would suggest if we can resolve it -- and I don't know -- that perhaps informally after we recess tonight, Mr. West, you can just consult with these people and see if we can come to any closer meeting of the minds on these figures. This is the kind of computation that I think we have to rely on experts to make and see if we can resolve them.

Let's see if we can. Is that agreeable with the other people we talked about? I don't want to make a commitment for the State or for Metcalf & Eddy that they can't handle.

If there is no objection, I hope you would get together with Mr. West and have an informal conversation.

Yes.

MR. WALD: Mr. Chairman, did you mean today? I hope this isn't going to be decided right now, because it is a very serious and complex question.

MR. STEIN: No, I mean for them to get together today.

MR. WALD: Well, I am certainly surprised to hear Mr. Stein, who is an experienced man in this field, make a statement of that sort, when a problem of this significance is involved.

MR. STEIN: Why? Don't you think they can get the notion that they —

MR. WALD: No, I don't think you have adequate information.

MR. STEIN: Wait just a moment.

I think what can be ascertained today is whether they are in the ballpark and can be talking to each other.

MR. LYON: Mr. Chairman, I —

MR. WALD: That's all.

MR. STEIN: All right. Well, I think that is significant that we should know that by tomorrow morning.

MR. LYON: I have to completely agree with Mr. Wald that this is much too complex a question and it is worth too many dollars to quickly get together tonight and try to resolve. I have already tried to point out that EPA didn't use the latest kind of model, and that we did, in fact, at least on one and probably on three occasions, submit the 60,000 pounds to EPA. Also that, as Mr. Wald has pointed out, certainly initially the plant is going to do better than 60,000 pounds.

But the issue really is: What is compliance with the established Federal standard? And I don't think that kind of complex question is going to be resolved in a quick get together tonight.

MR. STEIN: I didn't say it would be resolved. Again, let me make clear what we would hope to do: 1) they would determine if there were any grounds where you could expect this to be resolved by further consultation and working; 2) we would get the notion that if this were the case, how long that might take, or what kind of mechanism we could use.

Now I am not suggesting that a meeting of this kind come up with a definitive answer, but we are going to have to come up with a program when we leave here, and I think we are going to have to — if you can, let's try to throw some light on it.

MR. WALD: I can't agree it can be done that rapidly, especially in view of the fact that your own report is full of out-dated and fragmentary information, without determining the facts now, today, about the Ohio River.

I don't see how you can today decide about what degree of treatment the Sanitary Authority should provide.

MR. STEIN: Let me ask you this: Is there any objection to Mr. West and those people exploring the technical problem and seeing how far apart and close together they are?

MR. WALD: None whatever. All I am saying is don't issue an order tomorrow, or recommend that an order be issued tomorrow.

MR. STEIN: All right. Now that is why I am suggesting that we have the preliminary meeting tonight so we can get —

MR. WALD: No objection whatever; the sooner the better, provided it is done thoroughly and accurately.

MR. STEIN: Right.

Any other questions or comments? If not, thank you very much, sir.

Mr. Lyon.

STATEMENT OF WALTER A. LYON
DIRECTOR, BUREAU OF SANITARY ENGINEERING,
DEPARTMENT OF ENVIRONMENTAL RESOURCES,
HARRISBURG, PENNSYLVANIA

MR. LYON: Mr. Chairman, Pennsylvania's presentation will come in two major parts: 1) I will make a presentation from the technical point of view and 2) Deputy Secretary Eichbaum will talk about the enforcement program.

MR. STEIN: How long is it?

MR. LYON: I think we can be done in an hour — probably will take less than that.

MR. STEIN: All right. I want to make this announcement. In view of the time, we will probably just have time for Pennsylvania's presentation tonight, and nothing more. Fine.

MR. LYON: All right. Before I make my formal presentation, I would like to put into the record a letter written by Governor Shapp to Mr. Ruckelshaus, explaining in some considerable detail Pennsylvania's enforcement program, a matter that apparently was given no attention in the Federal report, and here is a copy of that letter.

(See pp. 236-238.)

When the conference was finally called, Dr. Goddard, Acting Secretary of the Department of Environmental Resources, again wrote to Mr. Ruckelshaus and pointed out some of the misinformation that was in the announcement issued by Mr. Ruckelshaus concerning sources of pollution in Pennsylvania, particularly referring to the progress that Jones and Laughlin is making; the Allegheny County Sanitation Authority; the State enforcement action on Crucible Steel, which was discussed today; the Shenango case; and again we brought these matters to attention, and again they were not mentioned in the Federal report.

(See pp. 239-240)

I would like also to put into the record the various announcements about EPA that again is an attempt to put EPA in the position of a knight in white shining armour saying we have to come to Pittsburgh to establish all these schedules when EPA had been given schedules time and time again. I would like to read some of the kinds of statements that are here.

"The purpose of the conference is to take timely abatement action through the adoption of effected implementation plans." There are effective implementation plans; they have been given to you on a number of occasions.

I would like also to put into the record the approval by EPA of the grant to ALCOSAN, which was done in full knowledge of the Federal standards, and the applicability of the discharge from ALCOSAN tc the Federal standards. (See pp. 241-244)

I would also like to put into the record a letter from Mr. Wald to the Department of Labor urging that their applications be handled more expeditiously, which gives the kind of feeling that ALCOSAN has always had of moving as fast as they can with their project. (See p. 245)

And then, of course, both in your announcement and in our discussion today we have talked — just taking as an example of the kind of compliance that we have had in this area, and this is certainly not altogether true, but of the kinds of schedules that have been submitted, reports by Jones and Laughlin and records in our file, to the kinds of orders that Mr. West was referring to were not in our file. (See pp. 259a-259i.)

Here is a letter dated September 4, 1970, in response to our so-called secondary treatment order that has schedules in it, and you will find these in our files, and our files are open to you at any time. (See pp. 246-253)

I also have here a statement by the Pennsylvania Medical Society, Mr. Joseph Schwerha, the Chairman of the Commission on Environmental Health; a statement concerning their concern with abatement programs in this area. (See pp. 254-259)

That is all I have. I have these two documents.

I would also like to say that in spite of the rules, we would like to have permission when we complete our statements for anyone in the audience here to ask us questions if they have any questions, if you so agree.

MR. STEIN: I would have no objection to that.

MR. LYON: Fine.

An effective water quality management program in the Ohio River Basin requires —

MR. STEIN: You are not going to put any more documents into the record, is that correct?

MR. LYON: Not —

MR. EICHBAUM: I would like to get some copies of these, too, Mr. Chairman.

MR. STEIN: Well, without objection, all of the documents that were presented will be placed in the record as if read.

MR. LYON: Thank you.

(The documents presented by Mr. Lyon follow in their entirety at the pages previously indicated.)

(See appended letter at end of transcript submitted after the close of the conference.)

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AUG-9 1971
OFFICE V

COMMONWEALTH OF PENNSYLVANIA
OFFICE OF THE GOVERNOR
HARRISBURG

MILTON J. SHAPP
GOVERNOR

July 22, 1971

Honorable William D. Ruckelshaus
Administrator
Environmental Protection Agency
Washington, D. C. 20460

Dear Mr. Ruckelshaus:

Thank you for your letter of July 2, 1971.

After careful consideration, I find that I must decline your request for an enforcement conference on the pollution of the Ohio River. I take this position because Pennsylvania already has a vigorous water pollution abatement program in the area and because Pennsylvania's recent experience with the Federal Government in the water pollution control area has been disappointing.

Pennsylvania's water pollution control program in Allegheny and Beaver counties, which encompass the part of the Ohio basin to which you referred, has produced the following results. Since 1968, thirty-six sewage treatment construction projects have been approved and are in progress. These projects will upgrade existing treatment and provide new treatment facilities for an additional two million persons. Since 1967, one hundred thirty-five industries have completed adequate treatment facilities; twenty-one additional industries have projects underway. In addition, enforcement efforts by the Environmental Pollution Strike Force have included sixteen injunction actions, fifteen summary actions, six negotiated stipulations, and fifty-four cases currently in negotiation or preparation for suit in these two counties alone. Our efforts in other Pennsylvania portions of the Ohio River basin have been equally vigorous.

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REGIONAL OFFICE V

On two recent occasions the Pennsylvania Department of Environmental Resources has requested Federal cooperation. In the Fall of 1970, two professors from The Pennsylvania State University collected evidence of pollution discharge on the Ohio River and gave the data to the U. S. attorney in Pittsburgh for prosecution under the 1899 Refuse Act. On December 10, 1970, the Pennsylvania Attorney General requested the U. S. attorney in Pittsburgh to make this data available to the State so that the State could take appropriate enforcement action under State laws. That request was rebuffed; the Federal prosecutions were not filed until April, 1971, and the State was prevented from using this data or from cooperating with Federal enforcement actions.

On May 26, 1971, the Pennsylvania Pollution Strike Force made a similar request regarding a pending Federal Prosecution of Wheeling-Pittsburgh Steel Corporation in order to insure that State laws would be complied with. The reply from the Justice Department was that "the Department of Justice regards all proceedings and negotiations in the course of Refuse Act litigation to be primarily a matter between the United States and the defendant."

On two occasions in the past, Pennsylvania has cooperated with the Federal Government in enforcement conferences. The State participated in the Monongahela River Conference in 1963 and the Mahoning River Conference in 1965. To date, the final Committee reports of these conferences have not been issued. We have found this Conference procedure to be much slower than our own enforcement measures. Our experience also shows that these conferences actually impede state enforcement efforts since polluters in the affected area wait to see the results of the conference. We should not take any administrative steps which delay concrete action. Further, I feel that our limited manpower should be devoted to more productive enforcement procedures.

Pennsylvania, Ohio and West Virginia are already working in concert through the Ohio River Valley Water Sanitation Commission to solve the problems to which you refer. This effort parallels Pennsylvania's own program. I note, also, that the Environmental Protection Agency is a voting member of the Commission.

In summary, Pennsylvania has an effective control program in the Ohio basin and is actively cooperating with Ohio, West Virginia and ORSANCO in this effort. When we have requested Federal cooperation in effective enforcement, we have not received it. I am not convinced that an enforcement conference would assist Pennsylvania's enforcement efforts. Indeed, from the record such a conference might well delay effective enforcement.

I regret that we cannot comply with your request.

Sincerely,

Milton J Shapp

MILTON J. SHAPP
Governor

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AUG-9 1971
REGIONAL OFFICE V

September 3, 1971

Mr. William D. Ruckelshaus, Administrator
Environmental Protection Agency
Waterside Mall Office
4th and M Street, S.W.
Washington, D.C. 20460

Dear Mr. Ruckelshaus:

In response to your notification of August 25, 1971, a designation has been made (reply dated August 31, 1971) of Pennsylvania's conferees who will participate in the Conference concerning pollution of the Ohio and its tributaries on September 30 and October 1, 1971. However, we have serious reservations about the value of such a Conference in terms of enhancing the abatement of water pollution.

Governor Shapp's letter of July 22, 1971, summarizes the substantial progress already made and actions now underway by Pennsylvania to improve and protect water quality in this area. Expenditures of well over a quarter of a billion dollars have already been made in Pennsylvania by public agencies and industry for new and upgraded water treatment facilities on the Monongahela and the portion of the Ohio River covered by the Conference. Vigorous enforcement actions already instituted by the Commonwealth will increase compliance progress toward our high water quality goals.

In your public announcement of the Conference you stated that you consider the major enforcement problem in Pennsylvania to be a lack of detailed time schedules which waste sources are required to meet. We are unable to agree on this point. In general, it is Pennsylvania's policy to require compliance schedules from every waste source. For example, in each of the specific cases which you identified, effective enforcement action has already been taken by the state. For well over a year the Allegheny County Sanitation Authority has had under way an expansion and upgrading construction program coasting nearly $50 million. The Jones and Laughlin plant at Aliquippa is now following an approved schedule for construction of additional waste treatment facilities. The Crucible Steel plant at Midland is complying with a schedule stipulated in a court order which provides for completion of upgraded treatment facilities by December 1, 1973. Compliance action is underway against Shenango, Inc., to establish a self-enforcing construction schedule for additional treatment.

These facts indicate a failure by EPA staff to understand the scope and dynamics of Pennsylvania's compliance and enforcement program. We believe you should take steps to correct this situation.

I am certain you will agree that these and similar concrete actions taken in Pennsylvania are substantial steps in implementing our water quality goals. Based on experience in the recent Monongahela Conference, it appears unlikely that the forthcoming Conference will produce any significant improvement. More disturbing to us is the potential delays which could result from uncertainties injected into the enforcement process by the Conference.

While we will participate in the Conference on the lower Monongahela and upper Ohio Rivers, we believe that more productive approaches should be followed. We welcome real assistance in cleaning up remaining pollution problems.

Sincerely yours,

MAURICE K. GODDARD
Acting Secretary

cc: Dr. Goddard
Mr. Reece
Mr. Gilbertson
Mr. Lyon
Mr. Eichbaum

WEG:db

ALLEGHENY COUNTY SANITARY AUTHORITY

3300 PREBLE AVENUE (412) 766-4810 PITTSBURGH, PA. 15233

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RECEIVED
AUG 26 1969
REGIONAL OFFICE V

August 22, 1969

Sanitary Water Board
P. O. Box 90
Harrisburg, Pennsylvania 17120

Attention: Mr. Malcolm W. Schoenly, Assistant Director
Office of Management and Board Services
Bureau of Sanitary Engineering
Department of Health

Re: Sewerage
WPC-Pa-417
Allegheny County Sanitary Authority
Allegheny County

Gentlemen:

We return herewith Part B of the Offer and Acceptance form, duly executed, together with all supporting documents. The form, with instructions, was sent to us on August 13, 1969 by Mr. Fred B. Grant, Chief, Municipal Grants Branch, FWPCA.

The enclosed documents, each in triplicate, consist of the following:

1. Part B of the Offer and Acceptance.
2. Proofs of Publication of invitations for bids for Contracts 312 and 313.
3. Tabulations of Bids received August 19, 1969 for both contracts.
4. Low bid for Contract 312, in the amount of $315,694, submitted by Garfield Refrigeration Co., Inc.
5. Low bid for Contract 313, in the amount of $7,440, submitted by Devlin Electric Construction Co.
6. Letter from each low bidder re Executive Order No. 11246.
7. Statement of each low bidder that he has received all applicable addenda.

The Board of this Authority, at its regular monthly meeting held yesterday, awarded Contracts 312 and 313 to the above-named low bidders for the prices shown, subject to approval by FWPCA. We await authorization to send out the contracts for execution by the successful bidders.

Very truly yours,

ALLEGHENY COUNTY SANITARY AUTHORITY

Leon Wald, Executive Director

LW/lb
Enclosures

RECEIVED
AUG 26 1969
REGIONAL OFFICE V

cc: Mr. Fred B. Grant, P.E.
WFPCA, Charlottesville, Va.

Mr. Howard G. Luley
Regional Sanitary Engineer

Metcalf & Eddy, Inc.

U. S. DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

FORM APPROVED
BUDGET BUREAU NO. 42-R1310

OFFER AND ACCEPTANCE OF FEDERAL GRANT FOR SEWAGE TREATMENT WORKS UNDER 33 U.S.C. 466 et seq.

(See instructions on page 3)

PART B - SUPPLEMENTAL PROJECT INFORMATION

NOTE: The CONTRACT SHALL NOT BE AWARDED UNTIL PART B AND ATTACHMENTS HAVE BEEN APPROVED by the Federal Water Pollution Control Administration and, where required, by the appropriate State agency. Therefore, the Applicant should submit this form and the required attachments as soon as possible after bids are opened. The prompt submission of this form will give the State agency and the Federal Water Pollution Control Administration sufficient time to approve Part B and to notify the Applicant that the contract may be awarded before the time period expires within which bids must be accepted. Part B should present all information necessary to indicate fulfillment of all conditions to the offer included in Part A of the Offer and Acceptance.

LOCATION OF PROJECT (State, County, City) Pittsburgh, Allegheny County, Pennsylvania	PROJECT NUMBER WPC-Pa-417

LEGAL NAME AND ADDRESS OF APPLYING AUTHORITY (herein called the "Applicant")

Allegheny County Sanitary Authority
3300 Preble Avenue
Pittsburgh, Pennsylvania 15233

SUMMARY OF MAJOR CHANGES (if any) IN THE PROJECT SINCE GRANT OFFER WAS ACCEPTED.

None

HAVE THERE BEEN ANY CHANGES IN THE FINAL PLANS AND SPECIFICATIONS SINCE DATE OF APPROVAL BY THE FEDERAL WATER POLLUTUON CONTROL ADMINISTRATION? ☐ YES ☒ NO

IF YES, HAVE THESE CHANGES BEEN APPROVED BY THE FEDERAL WATER POLLUTION CONTROL ADMINISTRATION? ☐ YES ☒ NO

SITE DATA:

A. If not previously submitted,

1. Attach a legal description of the site on which project is to be constructed.
2. Attach an opinion signed by competent title counsel describing the interest the Applicant has in the site, including information as to any easements and rights of way, and certifying that the estate or interest is legal and valid.

The opinion should also include information as to whether or not:

(a) The Applicant (or the present owner if fee simple title has not been or is not to be acquired) has good and valid title to the entire site (excluding easements and rights of way) free and clear of any pre-existing mortgages, deeds of trust, liens, or other encumbrances which would affect the value or usefulness of the site for the purpose intended; and

(b) Any deeds or documents required to be recorded in order to protect the title of the owner and the interest of the Applicant have been duly recorded or filed for record wherever necessary.

6. PROJECT COST ESTIMATE SUMMARY	TOTAL PROJECT	FOR GRANT PARTICIPATION
A. CONSTRUCTION *(specify numbers where requested)*		
(1) CONTRACT NO. 312	$ 315,694.00	$ 315,694.00
(2) CONTRACT NO. 313	$ 7,440.00	$ 7,440.00
(3) CONTRACT NO.	$	$
(4) CONTRACT NO.	$	$
(5) CONTRACT NO.	$	$
(6) LATER CONTRACTS	$ 37,044,866.00	$ 37,044,866.00
(7) EQUIPMENT AND MATERIALS	$ 1,180,000.00	$ 1,180,000.00
(SUB-TOTAL)	$ 38,548,000.00	$ 38,548,000.00
B. TECHNICAL SERVICES	$ 3,262,122.00	$ 3,262,122.00
C. LEGAL AND FISCAL	$ 350,000.00	$ 350,000.00
D. ADMINISTRATIVE	$ 350,000.00	$ 350,000.00
E. CONTINGENCY	$ 3,854,878.00	$ 3,838,643.30
F. OTHER *(specify)* Bond Discount, Bond Interest during Construction and Deposits to Funds	$ 3,277,200.00	$ ----
G. SITE	$ None	
H. TOTAL	$ 49,642,200.00	$ 46,348,765.30

EXPIRATION DATE FOR WAGE DETERMINATION

November 5, 1969

7. Attach the following information:
   - A. A detailed breakdown supporting the project cost estimate summary.
   - B. Tabulations of all bids received.
   - C. Copies of the bid or bids the Applicant wishes to accept.
   - D. Evidence of advertising.

8. FUNDS AVAILABLE FOR CONSTRUCTION OF THE PROJECT	AMOUNT
A. CASH *(including net receipts from bonds sold)*	$ 10,500,000.00
B. GENERAL OBLIGATION BONDS	$
C. REVENUE BONDS OR CERTIFICATES	$ 25,232,700.00
D. OTHER *(specify)* Federal and State Grants	$ 9,545,000.00
E. STATE AID	$ 345,100.00
F. FEDERAL GRANT	$ 4,019,400.00
G. TOTAL	$ 49,642,200.00

The undersigned representative of the Applicant certifies that the information contained above and in any attached statements and materials in support thereof, is true and correct to his best knowledge.

SIGNATURE OF AUTHORIZED REPRESENTATIVE Leon Wald	DATE August 22, 1969

NAME AND TITLE OF REPRESENTATIVE *(Type or Print)*

Leon Wald, Executive Director

ALLEGHENY COUNTY SANITARY AUTHORITY
3300 PREBLE AVENUE (412) 766-4810 PITTSBURGH, PA. 15233

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SANITARY AUTHORITY ALLEGHENY COUNTY
"ALCOSAN"

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Administrative Assistant
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Chief Engineer
GEORGE A. BRINSKO
Plant Superintendent
REGIS P. FOGARTY
Personnel Officer
RICHARD F. JONES
Chief Counsel

March 19, 1970

Mr. John Wilks, Director
Office of Federal Contract Compliance
Department of Labor
Washington, D. C.

Re: WPC-Pa-417

Dear Mr. Wilks:

Your office, we understand, is delaying the Federal Water Pollution Control Administration's approval of the award of contracts for electrical work on this Authority's $41.5 million federally-aided project.

The project will provide secondary-treatment facilities at our sewage treatment plant that serves the City of Pittsburgh and 73 surrounding municipalities. Construction bids were opened on December 9, 1969, and of the ten contracts advertised, all have been awarded except two totaling $3.06 million for the electrical work. The major construction work is already well under way, and every day's delay in awarding contracts for the electrical work subjects this Authority to the risk of unjustified criticism and possible damages for failing to complete the project on time.

You are no doubt aware of the importance of this project to the nationwide program of stream pollution clean-up. The effluent from our large plant is discharged into the headwaters of the Ohio River, and the now-under-construction secondary-treatment facilities will reduce by more than 50% the quantity of BOD in the plant's effluent.

We trust that your office will place at the head of its list the matter of approving the award of our electrical contracts without further delay.

Very truly yours,

ALLEGHENY COUNTY SANITARY AUTHORITY

Leon Wald

Leon Wald, Executive Director

LW:mb

cc: Hon. Hugh Scott, U.S. Senator from Pennsylvania
Hon. David Dominick, Commissioner, FWPCA
Hon. Ellsworth Browneller, M.D., Pa. Secretary of Health ✓

STEEL

JONES & LAUGHLIN STEEL CORPORATION

3 GATEWAY CENTER

PITTSBURGH, PA. 15230

September 4, 1970

Mr. Howard G. Luley
Regional Sanitary Engineer
State Office Building
300 Liberty Avenue
Pittsburgh, Pa. 15222

Re: Secondary Treatment Schedules, Aliquippa Works

Dear Mr. Luley:

Enclosed are three copies each of "Project Status Schedule Card" covering projects to install equipment for secondary treatment, or equivalent, for the discharges under seven Industrial Waste Permits at our Aliquippa Works Division.

Our Chemical Wastes Treatment Plant (Permit #3681009), now undergoing start-up, will provide secondary treatment for a number of waste streams, including those previously under Permit #1531, Roll Shop Oil Separator, and the Acid Rinses under Permit #1750. The Waste Pickle Liquor previously included under Permit #1750, as well as that which is under Permit #2033 for the Deep Well is not being discharged to the Waters of the Commonwealth. The Scale Pit effluents under Permits #1972 and #3681014 will be given the equivalent of secondary treatment in our proposed new clarifier-filter complex at Logstown Run. Blast Furnace Waste Waters previously under Permit #1297 will be given the equivalent of secondary treatment in the facilities being installed under Permit #469204.

If you have any questions concerning these schedules, please do not hesitate to let us know.

Sincerely,

G. C. Smith

G. C. Smith
Technical Coordinator
Industrial Wastes Control

SANITARY ENGINEERING

☐
☐ CHANGE
☐ DELETE

PROJECT STATUS SCHEDULE CARD

Blast Furnace Thickeners

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

NAME
Jones & Laughlin Steel Corporation

(2) APPLICATION/PERMIT NUMBER
1297

(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY)
Aliquippa, Pa. (Beaver County)

(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED)
G. C. Smith

(5) MAILING ADDRESS
3 Gateway Center, Pittsburgh, Pa. 15230

(6) TELEPHONE NUMBER
565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2)	☐	TYPE CASE NUMBER (7-8)	☐☐
POPULATION (3)	☐	PROJECT ABBREVIATION (9-23)	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
MUNICIPALITY (4-5)	☐☐	PROJECT NUMBER (24-25)	☐☐
TYPE MUNICIPALITY (5)	☐	ORIGINAL OR REVISED SCHEDULE (26)	☐
TYPE CASE (6)	☐	SCHEDULE APPROVED (27)	☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO DAY YR		MO DAY YR
FEASIBILITY REPORT (28-33)		AWARD CONTRACTS (52-57)	63070
PRELIMINARY PLANS (34-39)		START CONSTRUCTION (58-63)	73170
FINAL PLANS AND APPLICATION (40-45)	33169	COMPLETE CONSTRUCTION (64-69)	93071
ADVERTISE FOR BIDS (46-51)	13170	BEGIN OPERATION (70-75)	22972

(8) SIGNATURE OF RESPONSIBLE OFFICIAL
G. C. Smith

(9) DATE
Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

[illegible]
SANITARY ENGINEERING

☐ NEW
☐ CHANGE
☐ DELETE

PROJECT STATUS SCHEDULE CARD

Deep Well

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(1) NAME: Jones & Laughlin Steel Corporation
(2) APPLICATION/PERMIT NUMBER: 2033
(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY): Aliquippa, Pa. (Beaver County)
(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED): G. C. Smith
(5) MAILING ADDRESS: 3 Gateway Center, Pittsburgh, Pa. 15230
(6) TELEPHONE NUMBER: 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2) ☐
POPULATION (3) ☐
MUNICIPALITY (4-5) ☐☐
TYPE MUNICIPALITY (5) ☐
TYPE CASE (6) ☐
TYPE CASE NUMBER (7-8) ☐☐
PROJECT ABBREVIATION (9-23) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
PROJECT NUMBER (24-25) ☐☐
ORIGINAL OR REVISED SCHEDULE (26) ☐
SCHEDULE APPROVED (27) ☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO	DAY	YR		MO	DAY	YR
FEASIBILITY REPORT (28-33)	☐☐	☐☐	☐☐	AWARD CONTRACTS (52-57)	☐☐	☐☐	☐☐
PRELIMINARY PLANS (34-39)	☐☐	☐☐	☐☐	START CONSTRUCTION (58-63)	☐☐	☐☐	☐☐
FINAL PLANS AND APPLICATION (40-45)	☐☐	☐☐	☐☐	COMPLETE (See Below)* CONSTRUCTION (64-69)	☐☐	☐☐	☐☐
ADVERTISE FOR BIDS (46-51)	☐☐	☐☐	☐☐	BEGIN OPERATION (70-75)	☐☐	☐☐	☐☐

(8) SIGNATURE OF RESPONSIBLE OFFICIAL: G. C. Smith
(9) DATE: Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

* In operation since 1964. Reconditioned in 1969.

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DEPARTMENT OF

SANITARY ENGINEERING

☐ NEW

☐ CHANGE

☐ DELETE

PROJECT STATUS SCHEDULE CARD

Chemical Wastes Treatment

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(1) NAME: Jones & Laughlin Steel Corporation

(2) APPLICATION/PERMIT NUMBER: 3681009

(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY): Aliquippa, Pa. (Beaver County)

(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED): G. C. Smith

(5) MAILING ADDRESS: 3 Gateway Center, Pittsburgh, Pa. 15230

(6) TELEPHONE NUMBER: 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2)	☐	TYPE CASE NUMBER (7-8)	☐☐
POPULATION (3)	☐	PROJECT ABBREVIATION (9-23)	☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
MUNICIPALITY (4-5)	☐☐	PROJECT NUMBER (24-25)	☐☐
TYPE MUNICIPALITY (5)	☐	ORIGINAL OR REVISED SCHEDULE (26)	☐
TYPE CASE (6)	☐	SCHEDULE APPROVED (27)	☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO	DAY	YR
FEASIBILITY REPORT (28-33)			
PRELIMINARY PLANS (34-39)			
FINAL PLANS AND APPLICATION (40-45)	4	30	68
ADVERTISE FOR BIDS (46-51)	12	31	68
AWARD CONTRACTS (52-57)	4	30	69
START CONSTRUCTION (58-63)	5	31	69
COMPLETE CONSTRUCTION (64-69)	10	31	70
BEGIN OPERATION (70-75)	4	30	71

(8) SIGNATURE OF RESPONSIBLE OFFICIAL: G. C. Smith

(9) DATE: Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

DEPARTMENT OF HEALTH
SANITARY ENGINEERING

☐ NEW
☐ CHANGE
☐ DELETE

250

PROJECT STATUS SCHEDULE CARD

Waste Pickle Liquor and Rinse Water

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

NAME: Jones & Laughlin Steel Corporation

(2) APPLICATION/PERMIT NUMBER: 1750

(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY): Aliquippa, Pa. (Beaver County)

(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED): G. C. Smith

(5) MAILING ADDRESS: 3 Gateway Center, Pittsburgh, Pa. 15230

(6) TELEPHONE NUMBER: 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2) ☐

POPULATION (3) ☐

MUNICIPALITY (1-5) ☐☐

TYPE MUNICIPALITY (5) ☐

TYPE CASE (6) ☐

TYPE CASE NUMBER (7-8) ☐☐

PROJECT ABBREVIATION (9-23) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

PROJECT NUMBER (24-25) ☐☐

ORIGINAL OR REVISED SCHEDULE (26) ☐

SCHEDULE APPROVED (27) ☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO	DAY	YR
FEASIBILITY REPORT (28-33)			
PRELIMINARY PLANS (34-39)			
FINAL PLANS AND APPLICATION (40-45)	4	30	68
ADVERTISE FOR BIDS (46-51)	12	31	68
AWARD CONTRACTS (52-57)	4	30	69
START CONSTRUCTION (58-63)	5	31	69
COMPLETE CONSTRUCTION (64-69)	10	31	70
BEGIN OPERATION (70-75)	4	30	71

(8) SIGNATURE OF RESPONSIBLE OFFICIAL: G. C. Smith

(9) DATE: Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

SANITARY ENGINEERING

☐ CHANGE

☐ DELETE

PROJECT STATUS SCHEDULE CARD

Roll Shop Oil Separator

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

NAME Jones & Laughlin Steel Corporation	(2) APPLICATION/PERMIT NUMBER 1531
(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY) Aliquippa, Pa. (Beaver County)	
(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED) G. C. Smith	
(5) MAILING ADDRESS 3 Gateway Center, Pittsburgh, Pa. 15230	(6) TELEPHONE NUMBER 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2) ☐

POPULATION (3) ☐

MUNICIPALITY (4-5) ☐☐

TYPE MUNICIPALITY (5) ☐

TYPE CASE (6) ☐

TYPE CASE NUMBER (7-8) ☐☐

PROJECT ABBREVIATION (9-23) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

PROJECT NUMBER (24-25) ☐☐

ORIGINAL OR REVISED SCHEDULE (26) ☐

SCHEDULE APPROVED (27) ☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO DAY YR		MO DAY YR
FEASIBILITY REPORT (28-33)		AWARD CONTRACTS (52-57)	4 30 69
PRELIMINARY PLANS (34-39)		START CONSTRUCTION (58-63)	5 31 69
FINAL PLANS AND APPLICATION (40-45)	4 30 68	COMPLETE CONSTRUCTION (64-69)	10 31 70
ADVERTISE FOR BIDS (46-51)	12 31 68	BEGIN OPERATION (70-75)	4 30 71

(8) SIGNATURE OF RESPONSIBLE OFFICIAL G. C. Smith	(9) DATE Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

☐ CHANGE

☐ DELETE

PROJECT STATUS SCHEDULE CARD

Scale Pits

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(1) NAME: Jones & Laughlin Steel Corporation

(2) APPLICATION/PERMIT NUMBER: 368I014

(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY): Aliquippa, Pa. (Beaver County)

(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED): G. C. Smith

(5) MAILING ADDRESS: 3 Gateway Center, Pittsburgh, Pa. 15230

(6) TELEPHONE NUMBER: 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2) ☐

POPULATION (3) ☐

MUNICIPALITY (4-5) ☐☐

TYPE MUNICIPALITY (5) ☐

TYPE CASE (6) ☐

TYPE CASE NUMBER (7-8) ☐☐

PROJECT ABBREVIATION (9-23) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

PROJECT NUMBER (24-25) ☐☐

ORIGINAL OR REVISED SCHEDULE (26) ☐

SCHEDULE APPROVED (27) ☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

	MO	DAY	YR		MO	DAY	YR
FEASIBILITY REPORT (28-33)	1	31	70	AWARD CONTRACTS (52-57)	4	30	71
PRELIMINARY PLANS (34-39)	2	28	70	START CONSTRUCTION (58-63)	4	30	71
FINAL PLANS AND APPLICATION (40-45)	10	31	70	COMPLETE CONSTRUCTION (64-69)	10	31	72
ADVERTISE FOR BIDS (46-51)	11	30	70	BEGIN OPERATION (70-75)	1	31	73

(8) SIGNATURE OF RESPONSIBLE OFFICIAL: G. C. Smith

(9) DATE: Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

DEPARTMENT OF HEALTH
SANITARY ENGINEERING

☐ NEW
☐ CHANGE
☐ DELETE

253

PROJECT STATUS SCHEDULE CARD

Scale Pits

PART A

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(1) NAME: Jones & Laughlin Steel Corporation

(2) APPLICATION/PERMIT NUMBER: 1972

(3) LOCATION (BOROUGH, TOWNSHIP, OR CITY): Aliquippa, Pa. (Beaver County)

(4) NAME OF RESPONSIBLE OFFICIAL (TYPED OR PRINTED): G. C. Smith

(5) MAILING ADDRESS: 3 Gateway Center, Pittsburgh, Pa. 15230

(6) TELEPHONE NUMBER: 565-3714

PART B

(FOR DEPARTMENT OF HEALTH USE ONLY)

COUNTY (1-2) ☐
POPULATION (3) ☐
MUNICIPALITY (4-5) ☐☐
TYPE MUNICIPALITY (5) ☐
TYPE CASE (6) ☐
TYPE CASE NUMBER (7-8) ☐☐
PROJECT ABBREVIATION (9-23) ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐
PROJECT NUMBER (24-25) ☐☐
ORIGINAL OR REVISED SCHEDULE (26) ☐
SCHEDULE APPROVED (27) ☐

PART C

(TO BE COMPLETED BY MUNICIPALITY, INDUSTRY, APPLICANT OR PERMITTEE)

(7) ENTER DATES BY WHICH THE FOLLOWING PHASES OF THE PROJECT WILL BE COMPLETED:

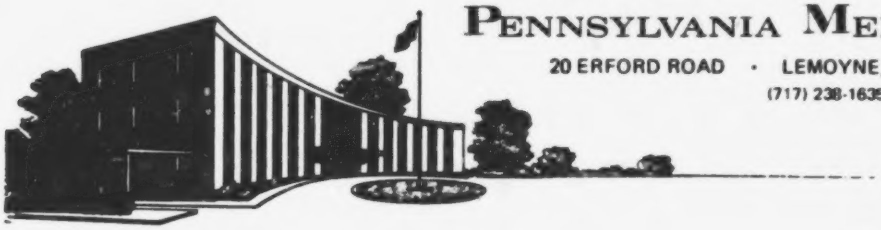
	MO	DAY	YR		MO	DAY	YR
FEASIBILITY REPORT (28-33)	1	31	70	AWARD CONTRACTS (52-57)	4	30	71
PRELIMINARY PLANS (34-39)	2	23	70	START CONSTRUCTION (58-63)	4	30	71
FINAL PLANS AND APPLICATION (40-45)	10	31	70	COMPLETE CONSTRUCTION (64-69)	10	31	72
ADVERTISE FOR BIDS (46-51)	11	30	70	BEGIN OPERATION (70-75)	1	31	73

(8) SIGNATURE OF RESPONSIBLE OFFICIAL: G. C. Smith

(9) DATE: Sept. 4, 1970

INSTRUCTIONS FOR USE ON REVERSE SIDE

254



PENNSYLVANIA MEDICAL SOCIETY
20 ERFORD ROAD · LEMOYNE, PENNSYLVANIA 17043
(717) 238-1635

September 29, 1971

Stella Gladkowski
505 State Office Building
300 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Dear Ms. Gladkowski:

Enclosed is my statement for presentation at the Ohio River Water Pollution Enforcement Conference.

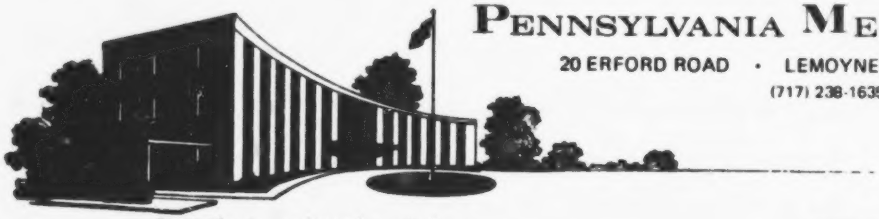
Sincerely,

Joseph J. Schwerha, M.D.

Joseph J. Schwerha, M.D., Chairman
Commission on Environmental Health

JJS/sa

Enclosures



PENNSYLVANIA MEDICAL SOCIETY
20 ERFORD ROAD · LEMOYNE, PENNSYLVANIA 17043
(717) 238-1635

Joseph J. Schwerha, M.D.

Personal Statement
Presented at Ohio River Water
Pollution Enforcement Conference
September 30 and October 1, 1971
King's Garden Room
Pittsburgh Hilton Hotel
Pittsburgh, Pennsylvania

I am very sorry I will be unable to attend the water pollution hearing on the Monongahela Basin. Speaking as Chairman of the Pennsylvania Medical Society's Commission on Environmental Health and as a representative of the Pennsylvania Medical Society, I have a special interest in the area of environmental health and pollution control.

Although there is ample reason for ending water pollution on recreational and aesthetic grounds, there is some data available as to detrimental health effects caused by waterborne diseases. Modern water treatment techniques and equipment are almost foolproof against the generally accepted waterborne diseases. That they are efficient for this purpose is evident from the fact that no major outbreaks of dysentery, typhoid, paratyphoid fevers or cholera have been attributable to public water supply in the United States since the 1920's or 1930's; unfortunately, there are other disease organisms that can be transmitted by water.

The current major method of testing both drinking and swimming water is by testing for the presence of coliforms. However, the coliforms are not highly chlorine resistant and applications of chlorine may drop the coliform values while other disease organisms are still present. It is known that the enteroviruses may be present in significant amounts in sewage effluent and that many of these are filter passing and relatively highly chlorine resistant. The most important of these viruses include three types of polio virus causing paralytic poliomyelitis and aseptic meningitis, coxsackie causing herpangina aseptic meningitis, infectious hepatitis causing infectious hepatitis, ECHO causing aseptic meningitis, summer rash and diarrhoeal disease and adenovirus causing respiratory and eye infection.[1] In addition, diarrhea and mesenteric lymphadenitis in children are caused by certain types of adenoviruses. Enteroviruses can survive all methods of sewage treatment even when this includes tertiary process and chlorination.[2]

In Paris in 1962, enteroviruses were isolated from 19 percent of 200 samples of drinking water taken from distribution made in that city.[3] In 1955-56, heavy sewage pollution of the river water supply in Delhi, India resulted in 30,000-50,000 human cases of infectious hepatitis. The water supply was fully treated there by pre-settlement, flocculation and settlement, gravity rapid sand filtration and chlorination. The treated water was well clarified and evidently bacteriologically satisfactory.[4] The point I would like to make is that while water treatment techniques are adequate, the quality of water that modern water treatment plants draw from their source, if the source is polluted enough, can make it difficult to remove all disease-related organisms. There are still limitations on how polluted that source may be.

I would like to make a further point. A 1970 Public Health Survey of cities under 50,000 population showed a very high percentage of water treatment plants that either because of the possibility of breakdown or because of the quality of water supplied did not meet the Public Health Service criteria Obviously, this can be very important if the initial water source is heavily polluted. In brief, there are potential public health hazards associated with a large scale reuse of sewage effluent which have not been resolved.

The other major area of public health concern is, I believe, toxic waste. While short-term standards have been established, the long-term effects of the ingestion of small quantities of toxins over a lifetime are not known. Total human ingestion of water exceeds that of all solids. There is much research that needs to be done in this area and unfortunately, relatively few toxocologists available to do that research. The enterovirus problem mentioned above is a similar area. Although isolated effects of heavily polluted waters show the potential hazard of the enteroviruses, current research as to low levels of pollution and enteroviruses is not sufficient. I would emphasize that in these areas we do not know much more than we do know and even the experts are often in disagreement. My point is not that we are now facing a real possibility of relatively large scale outbreaks of waterborne disease. In my opinion, we are not. However, if in the face of increasing population, increasing per capita consumption, increasing urbanization and increasing industrialization, we do not commit the necessary resources to cleaning up our water, then in the future we could be.

I have not commented upon the myriad of other reasons for supporting the strongest possible standards and early implementation of the Department of Environmental Resources' water quality criteria standards. We live in an affluent society, despite our current problems with inflation and recession and an increasing number of people with increasing numbers of hours for recreation are putting a higher value on the aesthetic and recreational values of clean water. This is especially true in an urban area such as we find along the Monongahela River.

I see three major contributors to the water pollution problem in the Monongahela Basin. Mine drainage has important damaging effects, especially on the upper basin. Although $150,000,000 is allocated to mine drainage control, and although this seems to be quite a substantial sum, it should be noted that this money is not intended for the Monongahela Basin alone and that monies must be available for mine drainage problems throughout the State. Industry, primarily heavy industry, adds its burden of pollution to the waters of the Monongahela Basin. Several industrial plants have been cited for lack of adequate pollution control facilities. Last, the communities themselves pollute the Monongahela.

Pollution control and the insuring of adequate drinking water is a community responsibility, a responsibility that some communities have not met.

I would urge that the Department of Environmental Resources continue its efforts to improve water quality in the Monongahela Basin and work closely with other states to bring about an improvement that would be to the benefit of all.

Joseph J. Schwerha

Joseph J. Schwerha, M.D., Chairman
Commission on Environmental Health

REFERENCES

[1] Saunders, W. R. (1968). Water and Wastes: The Public Health Viewpoint. Royal Society Health Journal. 88:247-50.

[2] Berg, G. (1966). Virus transmission by the water vehicle. II. Virus removal by sewage treatment procedures. Health Laboratory Science, 3, 90.

[3] Coin, L., Menetrier, M. L., Labonde, J. and Hannoun, M. C. (1964). Modern microbiological and virological aspects of water pollution. Second International Conference on Water Pollution Research held in Tokyo, Japan. Pergamon Press, New York, 1964.1.

[4] Dennis, J. M. (1959). 1955-56. Infectious hepatitis epidemic in Delhi, India. Journal of the American Water Works Association, 51, 1288.

JONES & LAUGHLIN STEEL CORPORATION
ALIQUIPPA WORKS

STATUS OF WATER QUALITY CONTROL PROGRAM

Jones & Laughlin Steel Corporation operates three integrated steelmaking plants -- one at Pittsburgh, another at Cleveland, and the third along the Ohio River at Aliquippa, Pa. The Aliquippa Works is the largest of the three, occupying more than 700 acres of riverfront land, and having about 13,000 employees. The annual payroll is about $100,000,000.

An integrated steelworks is one that starts with the raw materials of steelmaking -- iron ore, coal, and limestone -- and converts them into iron, and eventually finished steel products.

The Aliquippa Works receives coal by barge from J&L mines in the Monongahela River Valley and converts it into coke in 271 coke ovens. Iron ore is shipped in by rail from J&L iron mines in Minnesota and New York, and several other sources. The raw materials are charged into five blast furnaces at Aliquippa Works.

The iron from the blast furnaces is then converted to raw steel in our three-unit basic oxygen furnace shop, and from there the steel is distributed to other shops for further processing into finished products. Those finished products fall into four general categories -- tinplate and other cold rolled sheet products; pipe, both welded and seamless; hot rolled bars and structural shapes; and wire. Aliquippa Works shipped about two million tons of these products in 1970.

The Aliquippa Works was established in 1907, but it is by no means an obsolete plant. At Aliquippa, J&L pioneered in the development of the basic oxygen process, and its 80-ton furnaces, started up in 1957 but since replaced with the larger No. 2

BOF Shop, were the first commercial-scale BOF's in the United States. Aliquippa has a continuous casting unit for producing billets, which represents the very latest in steelmaking technology. Two blast furnaces have been recently rebuilt and incorporate the most modern ironmaking practices. In all, J&L has invested more than $500,000,000 at Aliquippa in the past 20 years to keep the plant on a competitive footing.

Included in that 20-year capital investment program, through 1970, approximately $21,000,000 has been spent for environmental control facilities, of which nearly $11,000,000 has already been spent for water quality control. Current programs of environmental control costs will greatly increase these totals. Budgeted programs for water quality facilities include over $5,000,000 more within the next two years. And these facilities incur an annual operating cost of about 10% of this capital investment.

J&L has a stated policy on environmental quality control. It is "to participate actively in the creation and preservation of acceptable environmental quality in all communities in which the Corporation operates. New facilities are and will be designed to meet or exceed government standards for air and water quality. Existing facilities are to be brought into compliance with current standards as rapidly as technology and economics permit".

When Aliquippa Works was built, starting in 1905, pollution of the waters was not a matter of public concern. In a day and age when population density was much lower, when homes were just starting to get plumbing and sewage treatment was unknown, conservation of resources and preservation of the environment were simply not considered. As a practical fact, everyone dumped wastes into the rivers and anyone who wanted to use the water, regardless of its condition, did so. A major factor in selection of the plant site was the Ohio River, available as both a water supply and a depository for wastes.

Since that time, and particularly in the past twenty years, the realization has come to the nation and to the Corporation that natural resources are not limitless and that we must clean up after ourselves. During this period, Jones & Laughlin has done a great deal to alleviate pollution and has tried to keep up with the technology required to meet pollution control regulations. But remember this has been a moving target. Today much more is expected, even required, of us than we had any idea of a few years ago. The accomplishments and projects we speak of in this area are largely recent and current because only recently has there been full recognition of the need for thorough water cleanup. This discussion will review briefly some of our accomplishments in the past, and then discuss in some detail our current program.

In the past, emphasis has been on major, concentrated pollution sources. In 1960, for example, at a time when the municipalities on the Ohio River were beginning to control sewage, Jones & Laughlin installed, at a cost of $1,500,000, a complete sanitary sewage collection system at Aliquippa Works. This system separated sanitary sewage from process and cooling waters and included collection lines and lift stations so that all this sewage could be introduced to the municipal sewage treatment plant.

Back in 1951, we recognized that the large amount of particulate matter picked up in gas cleaning and cooling in the blast furnace area should not be dumped into the river. We installed at that time two 105 foot thickeners at a cost of almost $1,000,000 to reclaim the flue dust from the blast furnace area water.

Waste pickle liquor is spent acid which has been used to "pickle" or clean the surface of partially finished steel. It has long been recognized as one of the worst sources of pollution from steel mills. In spite of efforts, dating back more than 30 years, to recover or reclaim acid and iron values from waste pickle liquor, it remains a serious disposal problem. Starting in 1958, Jones & Laughlin pioneered at Aliquippa Works in the development of a deep well for disposal of waste pickle liquor. This involved installation of facilities for isolating and collecting this concentrated waste and then pumping it into a well over a mile deep into a brine-filled sandstone formation. The mechanical operating problems with this system were many, and it was finally decided in 1970 that an alternate system would be more satisfactory. So after an expenditure of over $2,500,000, the well has been abandoned. But the isolation and collection of waste pickle liquor are successful; this concentrated waste has for years not been discharged into the river. As a backup to the well, we retained the services of a waste treatment contractor, who trucks the pickle liquor from the mill and safely neutralizes it with no stream contamination. Throughout our trying period of well tests and partial utilization, liquor not injected was hauled away. Now this system is used for all waste pickle liquor.

As long ago as 1948, we recognized that phenolic materials in waste water from the By-Product Coke Plant could be a serious pollutant. We installed in 1948 a solvent extraction system to remove these phenols from waste water. This system built at a cost of $250,000 is still operating successfully today at an operating cost of over $125,000 per year, although further phenol reduction, discussed later, was required a few years ago.

Other facilities installed over the years included scale pits to minimize discharge of water-borne solids from all the rolling operations, specialized chemical treatment facilities on plating operations, an oil recovery system to minimize oil losses from cold rolling operations, and connection of additional systems in the Sinter Plant and steelworks to the blast furnace thickener system.

Of more interest than these initial efforts to control gross pollution, however, is the work we have done in recent years to meet changing State Regulations requiring elimination of pollution.

At Aliquippa Works, this modern program can be divided into two sections: (1) a program for advanced control systems in a number of areas of the plant started a few years ago and moving rapidly toward completion; and (2) the installation of a new water system serving the major expansion of the plant, including the No. 2 BOF Shop and the Continuous Casting Plant.

The major program of stream pollution control now in progress began with inspections of Aliquippa Works by Pennsylvania Department of Health representatives during April, 1967. These led to a letter from the State on May 24, 1967 pointing out that several (seven) outfalls from the plant were found to be in violation of the Clean Streams Law and the then changing Rules and Regulations of the Sanitary Water Board. That letter led us to make a complete re-evaluation of the status of water quality control on all outfalls from Aliquippa Works. Under close supervision of the Pennsylvania Department of Health, we first carried out an extensive sampling and analysis program to characterize completely the wastes in each of the fifty (50) outfalls from the plant, and to relate each polluting discharge to its source within this complex mill. The following problem areas were identified:

1. Chemical Wastes in the Tin Mill Area
2. Oily Wastes from Tandem Mill Operations
3. Chemical Wastes in the By-Product Area
4. Cyanides in the Blast Furnace Thickener Effluent
5. Suspended Solids and Oils from Scale Pits

None of these problems was simply solved. The Chemical Waste Treatment system in the Tin Mill Area, for example, involved separation of contaminated water from clean water in a number of areas involving three separate outfalls, construction of four different riverbank collection and pumping stations to collect contaminated wastes from eight outfalls, and construction of a centralized waste treatment plant. The treatment for oily wastes from the tandem mills required extensive laboratory and pilot plant testing to develop a whole new process, as this was the first mill using the roll coolant-lubricant involved, to install a recirculation and recovery system. Secondary treatment for scale pit effluents involved two separate plans -- pioneering application of new technology in some areas, and collection and improving settling devices in others. One plan developed, approved by the State, and undertaken by Jones & Laughlin, turned into a false start -- failure of an installation by a competitor showed it wouldn't work. So a second design was developed. But in spite of the many problems involved, the program has moved ahead. The attached table shows the schedules approved by the State for each of these jobs, and the actual dates on which each phase was completed, as well as the costs involved.

Three of these projects, the Chemical Wastes Treatment Plant, and the treatment units for the By-Product and Blast Furnace Areas, have been completed, or are approaching completion, on the original schedules. The recirculation and recovery system for tandem mill coolant is approaching completion in compliance with a revised schedule submitted to the State in November, 1970.

The plans and schedules for the improved treatment of scale pit effluents have been submitted to the State. While this improved plan was being drafted, construction was begun on a portion of the original plan to equip the scale pit at the Rod and Wire Mill with a separate system, because of its remoteness from the other scale pits. This sub-project has been delayed with respect to the original scale pit project schedule, but it is now approaching completion.

That summarizes the current program for control of stream pollution from the older portions of Aliquippa Works. A major analysis of problems was greatly complicated by the maze of sewers that underlies any plant of this vintage. Out of this analysis came six major control projects; three are complete, one is nearing completion, and firm commitments have been made for the other two. In spite of mistakes, frustrations, false starts, and delays, great progress has been made. Out of a total current program projected at $13,200,000, $8,000,000 has been spent. Upon completion of the program, all outfalls will be in compliance with the Rules and Regulations of the State of Pennsylvania.

The new section of Aliquippa Works, the Crow Island Expansion including the No. 2 BOF Shop and continuous caster, represents a completely different approach to the problem of stream quality. From the outset of design, J&L realized that today a plant must consider water quality and minimization of discharges as an integral part of the plant. This led to the design of a completely separate water system involving a pumping station, treatment of incoming water to various degrees to meet specific process water requirements, and four separate isolated closed circuit systems. The only discharges from the system are blowdowns of clarified water from these closed circuits. Water requirements are thus at an absolute minimum, and except for dissolved solids from the incoming water, there are essentially no pollutants in the small discharge flows. This system was not inexpensive -- total cost was about $3,500,000. A significant but impossible to define portion of this is attributable to the stream protection features incorporated in the design. But it represents today's approach to achieving our goal of protection of environmental quality. We believe in this worthwhile goal.

EFY/meh
9/22/71

JONES & LAUGHLIN STEEL CORPORATION
ALIQUIPPA WORKS

CURRENT WATER QUALITY PROGRAM

	CHEMICAL WASTES TREATMENT PLANT		BY-PRODUCT PLANT		BLAST FURNACE AREA		WATER RECIRCULATION SYSTEM 5-STAND TANDEM MILL			SCALE PITS				
										PHASE I		PHASE II		
	ORIGINAL SCHEDULE	COMPLETION STATUS	ORIGINAL SCHEDULE	COMPLETION STATUS	ORIGINAL SCHEDULE	COMPLETION STATUS	ORIGINAL SCHEDULE	APPROVED REVISED SCHEDULE	COMPLETION STATUS	ORIGINAL SCHEDULE	COMPLETION STATUS	ORIGINAL SCHEDULE	REVISED SCHEDULE	COMPLETION STATUS
PRELIM. PLANS	1/68	DONE	5/68	DONE	1/68	DONE	10/68	DONE	DONE	7/68	DONE	7/68	DONE	DONE
PERMIT APPLIC.	4/68	DONE	NO PERMIT NEEDED - DISCHARGE ELIMINATED		3/69	DONE	NO PERMIT NEEDED - DISCHARGE TO BE ELIMINATED			8/68	DONE	8/68	6/71	DONE
ADV. FOR BIDS	11/68	DONE	12/68	DONE	12/69	DONE	7/69	DONE	DONE	2/69	DONE	2/69	11/71	ON SCHED.
AWARD CONTRACTS	3/69	DONE	3/69	DONE	5/70	DONE	11/69	11/70	DONE	5/69	DONE	5/69	3/72	ON SCHED.
START CONSTR.	4/69	DONE	4/69	DONE	6/70	DONE	11/69	11/70	DONE	7/69	DONE	7/69	3/72	ON SCHED.
COMPLETE CONSTR.	10/70	DONE	10/69	DONE	9/71	ON SCHED.	1/71	1/72	ON SCHED.	7/70	10/71	7/70	7/73	ON SCHED.
BEGIN OPERATION	4/71	DONE	1/70	DONE	2/72	ON SCHED.	4/71	4/72	ON SCHED.	10/70	12/71	10/70	10/73	ON SCHED.
CAPITAL COST	$3,400,000		$700,000		$2,000,000		$1,600,000			$900,000		$4,600,000		

9/21/71

MR. LYON: An effective water quality management program in the Ohio River Basin requires the cooperation of the three levels of government, Federal, State and local; ORSANCO; and the private sector of the economy.

Water quality standards required by Federal law have been established by the State and approved by the Federal Government for the Ohio and Monongahela Rivers. And I might mention that at the Monongahela Conference we submitted a detailed list of all of the cases and made that list a part of that record indicating their progress and compliance status. Included in the standards are effluent limitations for the various Pennsylvania municipalities, mines, and industries that discharge to the Ohio and Monongahela Rivers. ORSANCO, of which the Federal Government is a member, has recently established minimum effluent standards for the Ohio River and orders to implement these standards have been issued in Pennsylvania. Pennsylvania is implementing these standards. In addition, all active coal mines in Pennsylvania are under stringent control.

The Federal report prepared for this conference describes problems that were also recognized and described in establishing water quality standards. It omits problems which are significant in abating pollution of the Monongahela and Ohio Rivers. The most serious problem omitted is that of abandoned mine drainage which must be solved if water quality standards are to be met. And I think it is a matter of interest that in these reports, if any of you care to look at them, we have put white slips of paper in the pages that talk about the pollution problems of the Ohio, and in nearly every case there is a statement of the importance of the abandoned mine drainage problem to clean up the pollution of these rivers.

The Federal report tends to play this question down. The mines not only add to the acidity and iron problem but also to the dissolved solids problems.

The Federal recommendations for control of waste discharges conform to Pennsylvania's implementation plan in general, although there are some detailed technical questions relating to these recommendations. Despite the level of cleanup proposed by these recommendations and being carried out by Pennsylvania, abandoned mine drainage remains a major problem. Five major fish kills occurred in the past 2 years in the Lower Allegheny River, and a major fish kill occurred on the Lower Monongahela River this year due to acid mine drainage flushouts.

It is not likely that a significant improvement in the rivers' fisheries will occur unless abandoned mine drainage pollution is abated.

W. Lyon

In addition, analysis of the dissolved solids content of the Ohio River indicates that dissolved solids are two to three times natural concentrations. About 75 percent of the excess dissolved solids are believed to be due to mine drainage.

In the Monongahela River, total dissolved solids do not meet water quality standards. Most of the excess is due to mine drainage. Since the standards are not met, new significant sources of dissolved solids cannot be allowed, and economic development could stagnate. The more economical forms of air pollution control measures through water disposal that are badly needed are constrained because of this problem. Two major air pollution sources are sulfur emissions and coke quenching which would significantly increase the dissolved solids load.

During the past few years there has been improvement in the pH and dissolved oxygen content of the Ohio River in Pennsylvania, and the Monongahela River showed a significant improvement in acid and iron.

This improvement has been due to numerous actions by Pennsylvanians to improve the river and its tributaries. Over $300 million in local share — and that includes private industry — has already been spent for pollution control. Another $200 million in total costs is under construction or planned. We expect the river to meet all criteria except pH, acidity, iron, and total dissolved solids when this work is completed. Complete compliance cannot be attained until a significant amount of the abandoned mine drainage is abated.

And then we show in our report -- and we have copies of it here if you would like it -- the cost breakdown of the over $1 million cleanup job that the people of this area are doing. And I would like to point out that the population in this area is diminishing and not growing as is the case in many places of the United States.

By 1974 an investment of over 1/2 billion dollars will have been made in pollution abatement in Pennsylvania's portion of the Ohio Basin.

EPA recommends higher levels of BOD reduction on the river. We agree that more BOD reduction is needed. This is why the limit of 60,000 pounds per day at ALCOSAN was established after stream study during low flow summertime conditions to maintain a minimum of 4 mg/l dissolved oxygen in the river at a flow of 3,800 cfs. An order setting this limit was issued by the State in 1966 after consultation with ORSANCO, on which EPA's predecessor was represented. There was no objection to that proposal. EPA approved the ALCOSAN upgrading project for a construction grant in 1970.

The location, operation and construction of navigation dams significantly reduce the dissolved oxygen resources of the river. Considering presently required levels of treatment, an additional 2.5 mg/l of dissolved oxygen would be available if the Ohio River were free flowing. In terms of water use, the treatment needed to hold dissolved oxygen above warm-water fish requirements would, under natural river conditions, hold oxygen above trout requirememnts. If some or all of this lost dissolved oxygen could be restored, we would have a large factor of safety to protect warm-water fish against treatment upsets and other problems associated with dissolved oxygen levels in the stream.

In other words, the people of this area are helping to pay for some of the navigation costs of the stream through their sewer bills.

It is recommended that EPA request the Corps of Engineers to restore dissolved oxygen to the maximum practical extent in the pools above existing lock and dam structures, and that future replacements, modifications, and operations of such structures be made to maximize stream reaeration, as Mr. West pointed out, that there were discussions of this kind between EPA and the Corps and we are certainly happy to see that.

Federal demands on Pennsylvania for data have increased significantly during the past several years. Under the threat of losing the already inadequate amount of program grant money now paid to the Commonwealth, field staff have been diverted from making inspections to transfer data from State forms to Federal forms. This diversion has resulted in the loss of 2,500 inspections per year and consequent loss of enforcement capability. And it is going to increase because EPA has just imposed some additional requirements to fill out Federal forms.

Federal financial support of State water pollution control programs has fallen far behind that anticipated in the Federal law while Federal demands on State time have greatly increased. The Federal Water Pollution Control Act sets the minimum Federal share at 1/3 of the total State program cost with an expectation of 50 percent as an average figure. Authorizations and appropriations have not matched this level of participation. Over the past 5 years Pennsylvania's grant has averaged only about 25 percent of its program costs which is a deficiency of between $1.75 million to $6 million. The average annual deficit ranges from $350,000 to $1.2 million. More inspections, followup, and general pollution abatement could have been achieved had these moneys been made available.

In terms of financial help, the States receive for programs about 1.2 percent of the total Federal water pollution control budget.

In a little more than 3 years, three separate Federal regulatory actions regarding water quality standards have been taken. In May 1968, the Secretary of Interior approved water quality standards for interstate standards in the Ohio River in Pennsylvania. And I will ask permission at a later date to make that approval* a part of the record since it has come up in the discussion.

On November 13, 1970, ORSANCO, on which EPA or EPA's predecessor was represented, unanimously adopted a water quality standard for the Ohio. On July 2, 1970, EPA issued Federal Regulation 18 CFR 601.32-33 requiring the States to develop comprehensive basin plans for water pollution control including detailed abatement programs for regional and metropolitan areas. These are to be completed by July 1, 1973. The Federal report for this conference issued by EPA now recommends a fourth set of Federal standards. Our question is: Which one do we follow?

The establishment of a standard triggers a chain of activities including orders, engineering designs, financing,

* See appended material at end of transcript.

construction and operation. It is humanly impossible for the industries and municipalities of this area and the Commonwealth of Pennsylvania to respond intelligently to this moving, erratic, vacillating target of Federal standard-setting.

We want clean streams. We will accept the Federal role in water pollution control, but we cannot live with constant vacillation.

Industries and municipalities which do not want to move to abate their pollution take advantage of such vacillation.

It is therefore our view that the standard revisions that are in the recommendations of the Federal report be rejected and that the present process which has been triggered under Federal Regulation 18 CFR 601.32-33 — which is a regional planning requirement; we think it is a very good thing, something that needs to be done — involving sound comprehensive planning be used to establish additional modifications in effluent standards. In order to avoid unnecessary delay, we recommend:

a) That a matching Federal grant of 50 percent be made within 1 year to develop a comprehensive water quality management plan, required under 18 CFR 601.32-33 for the Ohio Basin, to cover all aspects except abandoned mine drainage.

b) That a 75 percent Federal grant be made within 1 year for the abandoned mine drainage portion of the plan.

c) That this conference be discontinued and any changes in standards be carried out through ORSANCO or the proper channels outlined in Section 10 (c) of the Federal Water Pollution Control Act.

For those of you who are not familiar with the Act, that section provides a vehicle for EPA to change the already approved or established Federal standards.

This conference was called under the Enforcement Sections of the Federal Water Pollution Control Act. It is curious, therefore, that the Federal report does not speak in any way as to the subject of the on-going enforcement programs involving the Federal Government, ORSANCO, and the Commonwealth of Pennsylvania. This would appear to be an appropriate concern of this conference and it should therefore be noted that in the section of the basin upstream from the Pennsylvania state line, the Commonwealth of Pennsylvania has, in the past 5 years, taken 5,100 enforcement actions, including violation notices, upgrade orders, compliance and punitive actions. The Federal Government's Federal enforcement actions have been taken against four companies during the same period.

In this connection, when we asked for data on cases being considered for prosecution by the Federal Government under the 1899 Refuse Act we were refused the data for 10 months. We were recently given the data after our complaint at the reconvened session of the Monongahela River Enforcement Conference a month ago.

I think, Mr. Chairman, that since this is an enforcement conference, we should talk about enforcement. To dramatize the kind of enforcement that has been taken by Pennsylvania, we have counted 5,100 peanuts and just to show the kind of effort that Pennsylvania enforcement action has been taken in this area, we have brought along a bag — I think it weighs about 28 pounds — of peanuts to show the enforcement action that has been taken here --

MR. STEIN: You don't mean to imply that Pennsylvania's enforcement has been peanuts so far. (Laughter)

MR. LYON: And we have also brought along a small cup to show the Federal enforcement action.

My suggestion would be if it is enforcement you are concerned about support your local sheriff. (Laughter)

I would now like to introduce —

MR. STEIN: Do you want to have any comments or questions on your statement?

MR. LYON: That is fine.

MR. STEIN: Are there any — yes, Mr. Richards.

MR. RICHARDS: Mr. Stein, since I am not going to be able to be here tomorrow, Mr. Frost will present a statement that was prepared by Ohio. However, I do feel that I would like to support Mr. Lyon's recommendation that any recommendation that comes from this conference should recognize the program that is in force at the present time through ORSANCO's effluent standards.

MR. STEIN: Are there any other comments or questions?

One thing, Walter, you made most of these points earlier this morning, and they have been commented on. So I think we can save some time, and I think there have been pretty full discussions.

However, there is one point that you made again and again. I am trying to inject these comments as a Chairman to give the other point of view, that you may see as one of the Federal Government. That is particularly in the permit program the Federal Government is making requests on State time.

I think as Mr. Lyon knows, as we all know who work for government, and as Col West pointed out, when you get a law to enforce and they give you the job, you enforce it. We have the permit section of the 1899 Act to enforce.

Now given that task, you had a choice if you were going to do it in the Federal Government, either do this yourself or cut the States in and do this in a cooperative way with them. Now here were the choices. As a matter of fact, there is a provision there where the States that feel that they can't handle this load can waive this and just send it on to the Federal Government without reviewing them. I think it is much better if the States do this.

But the choices given a Federal administrator are this: either you are going to handle the program alone without consultation with the States, or if you do handle that with consultation with the States, it necessarily is going to make a demand on State staff time. And I think the determination was made where at all possible to give the States an option to cooperate in the program.

MR. LYON: Well, Mr. Stein, I think you are not really giving us a full picture on this. If it were just a question of consultation with the States, we wouldn't have any problem. But you don't have the information; we do. And you use our people for your source of information. You have to because you simply don't have all these records, and all these studies that have been made by us of Pennsylvania's applications for permits.

If you didn't need us, there wouldn't be any problem. But the fact is you do, and I think it is a realistic thing to say that if you are going to have a permit system you are going to need our help. The problem is who is going to pay for it?

MR. STEIN: Again, maybe we look at things the same way. But as far as I am concerned we use public records wherever we can get them; private records if we can get them from companies too. And certain companies have been very cooperative with us in providing the information.

The point is we don't go out when there would be duplication or duplicating work, as you say, or when there are records available in any form. That is what we do everywhere. We have found that we have had to augment these records by a considerable amount of field investigation and research ourself, particularly when we bring cases. But I think that is the nature of our system. You have just said, Walter, that your records were open to us at any time. So are ours open to you. That is the way government operates.

MR. LYON: I wish that were so, Mr. Stein, but it took us 10 months to get your records on the Nixon and

Zavodni cases, and it is not correct to say that your records are open to us. If you are saying that now, can you speak for all of your offices? Can we go to your offices and go through your files like you go through ours?

MR. EICHBAUM: If I could elaborate on that just a minute, Mr. Chairman. One of the reasons that the Commonwealth of Pennsylvania originally objected to this conference when we thought that it was an enforcement conference was because we had had a very bad experience in trying to cooperate with the Federal Government.

In fact, the Federal Government's records on enforcement are not open to us. In December of last year the Attorney General of Pennsylvania wrote a letter to the U.S. Attorney in Pittsburgh requesting that the Nixon information be made available to the Commonwealth in order that we might cooperate. That information was never made available.

More recently I wrote the attorney that is in the Justice Department, who is in charge of Justice Department prosecutions or equity actions in this area, asking if the Commonwealth could be apprised for the same purposes of cooperation of the action that was being taken against Wheeling-Pittsburgh. That gentleman wrote back to me and said that, no, they would not make any information available to me; they would not talk to us except that they did agree that before there was some final decision made they would let us know what it was.

MR. STEIN: Now --

MR. EICHBAUM: Those are the facts on the cases where we have tried to cooperate.

MR. STEIN: Now I am beginning to understand what you are talking about. You are talking about going to the U.S. Attorney to get the information

MR. LYON: No, we are also talking about EPA information.

The EPA investigated the Nixon and Zavodni cases, and the information was given to us about 2 weeks ago, 10 months after we requested it.

MR. STEIN: Again, I think that comes from the same cases. Now here is the situation. An Assistant U.S. Attorney has testified before a congressional committee on the same matter.

Now these cases under the 1899 Act in very many cases are criminal cases because the 1899 Act was a criminal statute.

The Justice Department has indicated that in taking action under a criminal statute with pending litigation under various circumstances does not think is in accord with the canon of legal ethics to divulge certain of this information and make it public.

On the other side, he always had that deference to the various demands; trying cases in the newspaper is the other kind of thing —

MR. EICHBAUM: Well, if I understand what you are saying then, you are telling me that when the Federal Government is going to prosecute under the 1899 Act they won't cooperate with the States.

MR. STEIN: No, I —

MR. EICHBAUM: They won't make available their information to us.

MR. STEIN: I am not saying this at all.

I try to wait until you finish. Let me try to finish. Now the point is the Department that handles these cases is the Department of Justice. They speak for the United States in going to court on these matters. When a case is under the Department of Justice we abide by the Department of Justice rules and regulations.

I think the question you are asking here is a question on which there is much discussion now, and several congressional committees are exploring this.

What I would like to say is if you want any information from files that I have, or under our jurisdiction, those files are open, Mr. Lyon, just the way your files are open to us. I think this is well known to you.

However, we will necessarily respect the Department of Justice wishes on the matter when a case is referred to the Department of Justice or if the Department of Justice gets it by itself, and the case is being handled and the determinations are being made by the Department of Justice.

MR. EICHBAUM: Well, if the Department of Justice is then making the decisions on enforcement cases which are actually being enforced in the courts of law, it would seem appropriate that they would be at this conference so we can talk to them.

MR. STEIN: Well, I think you would have to --

MR. EICHBAUM: It seems kind of difficult for us to have an enforcement conference when the people doing the enforcement for the Federal Government aren't here.

MR. STEIN: Oh, no. Now there are several stages in that. The Department of Justice doesn't get the case until we turn it over to them. All our information is available to you if you would come to us.

The same recommendation here is made that you want determination of this conference the way you made it at the

Monongahela, when, horror of horrors, until you made the request to me at the Monongahela you didn't get that information. Maybe we are doing you some good.

We offer to you in a cooperative spirit a free exchange of information with us. I hope you reciprocate and take advantage of it.

MR. EICHBAUM: I am very happy to. I am very glad we got that information after the year had elapsed. We are looking at this closely.

MR. STEIN: As Mr. Lyon well knows -- and I know how strapped you are -- I have a telephone and I accept collect calls. You could have called me any time and got the information.

MR. EICHBAUM: I was told at the time that it was under the control of the Justice Department. As you indicate, you abide by their decision and their decision was not to give it to us. That was the problem.

MR. STEIN: All right. May we go on?

MR. LYON: Well, Mr. Eichbaum has already introduced himself. He is going to speak to Pennsylvania's enforcement program.

STATEMENT OF WILLIAM M. EICHBAUM,
DEPUTY SECRETARY OF ENFORCEMENT,
DEPARTMENT OF ENVIRONMENTAL RESOURCES,
HARRISBURG, PENNSYLVANIA

MR. EICHBAUM: Let me, first of all, very briefly tell you who I am — both the conferees and the audience — because I understand that not very many people know me as I have not been seen up on these panels before.

The statute creating the Department as of January 19 this year created a position of Deputy Secretary for Enforcement. That position was filled in June of this year with my appointment.

Prior to that, I had been the Head of the Environmental Pollution Strike Force, which some of you may have heard of. That group of attorneys remains under the office of the Deputy for Enforcement, and we are in the process of augmenting the number of lawyers that we have from 6 now to about 9, and in this fiscal year probably up to about 23 or 24 for the Commonwealth of Pennsylvania — that will be full-time enforcement attorneys enforcing the environmental statutes which the Department of Environmental Resources is responsible for administering.

W. Eichbaum

I have a first question here, Mr. Stein, which I think is largely directed to EPA, and it is somewhat of a comment, and a desire to kind of meet Mr. Marshall's request that we cool it a little bit. I will state it as coolly as I can.

It seems to me there are two things that we have talked about during the course of the day. The first thing that we have talked about is whether or not industries and municipalities in the Commonwealth of Pennsylvania are proceeding rapidly enough to implement the programs that they have to in order to achieve standards which were or were not previously approved. There apparently is some argument on that point.

The second thing that we have talked about is whether or not the standards which we are trying to achieve make any sense, whether those should be revised.

Now, I don't know if that is an accurate characterization or not of what we have talked about, but that is my impression.

As I look at the statute under which the Federal Government, EPA, called this conference, which is Section 10 (d), really all we can look at is occurrence of pollution, adequacy of measures, natures of delays — that kind of thing. We can't look at a revision of the standards. In

W. Eichbaum

fact, the statutes specifically provide that if that is the question, if the Secretary is not satisfied with standards, which includes implementation, which includes some of the things we have talked about today, then there is another procedure under Section 10 (c) of the statute.

What I am suggesting is that we have gone far afield of where we ought to be. In fact, there isn't any authority for EPA to do some of the things, to say some of the things that you said to Mr. Wald. It doesn't mean that they ought not be said maybe. I am not evaluating that point.

But I am confused at this point whether we are talking about enforcement or whether we are talking about whether or not the standards are any good.

I also understand that there is in fact an EPA-sponsored procedure which is now under way, which Mr. Lyon referred to, for reexamining those standards; and if that is under way that is where those questions ought to be.

And I think that the Commonwealth is in a position of fairly strongly objecting to calling a conference under one section of the statute which gives the Federal Government certain powers and responsibilities and, in fact, discussing other matters which it is supposed to discuss and act on under another section of the statute which gives it different powers.

I don't know whether you want to talk to the lawyers from EPA that are here and resolve that question, and let's get some direction to what this thing is supposed to be about. I don't think we have gotten very far today.

MR. STEIN: Here is the lawyer from EPA that is here, and you can talk to me. What kind of direction do you want?

MR. EICHBAUM: What I want to know is, and to your understanding, how is EPA able to impose or try to get a discussion of the revision of standards which are part of an implementation plan under Section 10 (d) when Section 10 (c) specifically sets out the basis upon which that is supposed to be done?

MR. STEIN: We are not trying to get a revision of the standards here; we are trying to set up --

MR. EICHBAUM: The implementation plan.

MR. STEIN: -- the implementation plan here, plus effluent requirements, as you saw in the proposal, which is not permitted under our present standard provisions. You have just picked part of this, because the Federal report came out in detail with effluent requirements from various places, and these are not found in any of the standards, just dealing with the dates.

MR. EICHBAUM: Doesn't section (c)(1) refer to implementation of the water quality criteria and set forth a procedure for changing that?

MR. STEIN: Yes. We are not here on the standard provisions of the Act. We are here under the conference proceedings of the Act, where the Secretary believes, on the basis of reports and studies and other information that interstate pollution exists.

I think that Mr. West made his statement where he said in his view, from the EPA report, that such interstate pollution existed and was subject to abatement under the Act. He came up with a series of proposals which included effluent standards and dates, and neither one of these would be a way you would go about amending the standard provisions of the Act. We are operating under a different provision of the law.

MR. EICHBAUM: As I understand, they are what an implementation plan is, and section 10 (c) addresses that; section 10 (d) does not talk about an implementation plan. I would think that the appropriate thing, if we find that the standards aren't any good, then we have got to go to a 10 (c) conference.

What all of the consequences of this are I don't know. So I don't want to pursue it any longer. I just wanted to get your thinking clear.

MR. STEIN: You asked what we thought. Now, before we ever had the standards provisions, there were two things we always came up with at the end of an enforcement conference when we got agreement: 1) One was a requirement of what had to be done, usually or almost always in terms of effluent standards or effluent requirements. This is not part of our regular standards program. 2) And the other was the dates that this had to be done.

Now, in any kind of program in this field or in constructing anything, you have to have two things: 1) what you are going to do, and 2) when you are going to do it.

The fact that the standards program has an implementation schedule and has the dates in, and we have come up with enforcement programs, are characteristics of any program, any kind of schedule that is going to work. But that doesn't say that we are proceeding under the standards revision proceeding here. We are dealing with interstate pollution subject to abatement under the conference proceeding.

MR. EICHBAUM: Well, that is good to get your interpretation.

One other point that I have along that line was that — and I don't want to dwell on this too long other than to comment on it. The report — as you point out, the finding has to be that there is pollution which is adverse to the health or welfare of persons in the State other than that in which the discharge or discharges originate.

MR. STEIN: The statutory words are "endangers the health or welfare of persons in a State other than that in which the discharge originates," yes.

MR. EICHBAUM: Right.

There is very little in the report that I see that actually says that other than as a conclusion from what is going on in Pennsylvania. And I again, without expressing a technical opinion about what is happening down the Ohio in West Virginia, I would submit to you that the report is inadequate in establishing that the facts of what you very comprehensively, with some question, cover about what is happening on the Ohio in Pennsylvania is fairly poorly — at least it appears — unrelated to what is taking place farther on downriver. And I further understand, in very brief informal discussions with some of the other representatives of some of the other States, that the situation is somewhat different than you would be led to believe it was if you just made an automatic inference from what you say is happening in Pennsylvanis to what is happening downstream. So I have some questions about the adequacy of that finding, and again the basis of that as being a basis for holding this conference.

If we turn from that -- and I don't know whether it makes much sense to turn from that -- to what Pennsylvania is trying to do in enforcing the statute, the standards and the criteria which we have, I would like to just take a few minutes to relate some of the things that we have done from a legal perspective on the part of the Ohio-Monongahela with which this conference is supposed to deal.

In the last year, we have dealt with a large number of cases which have been in varying degrees noncompliance, and in process of that -- if I can find my notes -- we have filed on the Ohio and on the Monongahela a total of 17 equity actions which are injunction actions where we have asked the court to promptly order the alleged polluter to cease the discharge or to take reasonable steps which will immediately bring about the installation of treatment facilities so that the effluent is in compliance with law.

I might note that the average time which the courts take in our case is -- between the day we file the case to the day when we get a court order putting that company or municipality under the order of a judge to take the appropriate action -- the average time is 2 months. Now some of you may have been under the apprehension that the court process is rather lengthy and you don't get anywhere. Well, I think that that statistic which is based on just what has happened here on the Ohio is fairly impressive as to the use which the Commonwealth has been able to make of the court system.

In addition to those equity actions, we have filed a total of 16 criminal actions -- summary criminal actions -- against a variety of polluters, again for violations of Pennsylvania law. We have entered into a total of 7 negotiated stipulations which are essentially the result of across-the-table negotiations between the lawyers for the Commonwealth and the lawyers for the polluter which entail a comprehensive review of what they have done, where their violations are, and the appropriate steps that they have to take to get into compliance.

I might note that our attitude toward these negotiated stipulations is that we think we get as much or more that way as we would if we were to go into court, but particular circumstances in particular cases dictate one route or the other. But we don't settle for less when we talk to the people across the table.

We have had a number of civil penalty hearings before hearing examiners of the department. You might be interested in knowing that civil penalties in excess, I guess of $60,000 to $70,000 have been collected from violators in the last year on this part of the stretch of the Ohio just since the provisions of the Clean Streams Law permitted the Commonwealth to do that as of August last year.

We are in the process now of dealing with about another 25 or 30 cases -- that is to say the two lawyers that I have in my office in Pittsburgh are actively pursuing that many more cases where we are either in court or we are preparing them for court or administrative hearing or criminal action.

Now you might be somewhat interested in knowing what are the kinds of terms that we get out of these agreements. We generally look for, first of all, the most rapid possible installation of the technically most feasible equipment to deal with the problem. And where there are serious adverse impacts of the discharge upon the water, we spend a hard amount of energy in trying to find some way to just keep that discharge from occurring at all to get in-plant treatment and recycling of the effluent within the plant.

In addition, we generally impose some sort of a civil penalty in respect of the past damage which has been done by the illegal discharge. We, in addition, require the polluter to pay an amount of money to the Commonwealth which is equal to that which he saves by not operating the facility which he is now going to build but which he should have had built before. We don't think he should save any more money than he already has.

In a number of the cases which we file or the agreements which we have gotten, we have also required, at the end of the construction of the facility, that the company take the steps that it is able to take that are practical in terms of technology to restore the damage that was done by the illegal discharge. And we have at least one company which is mentioned in the report which has pretty much installed all of the equipment that it was required to install, as the result of court action begun last year, and is now preparing the restoration steps which it will take for the watershed which it is on.

I think we have a fairly comprehensive program and obviously we haven't hit everything. If you are interested, I will name some names. We have gone against Jones and Laughlin. We have gone against U.S. Steel. We have gone against Townsend. We have gone against H. Robertson. We have kind of run the gamut from car washes up to the United States Steel Company.

We will be continuing this work in the future. At this point I have no idea what our enforcement program is supposed to be like in relationship to the Federal problems that apparently they have, and have called this conference to solve. We have standards in Pennsylvania which have largely been approved by the Federal Government. We have schedules and we have implementation plans, and we intend, in the months to come and the years to come, to see that those are enforced as vigorously as possible, using the court system, using it more than the Commonwealth has used it before, and I might note using it more than any other jurisdiction in the United States has used the court system to get compliance with these laws.

I would suggest that if either citizens or EPA has problems with what we are doing in court with the standards that we are requiring companies to meet that they intervene in those actions, and let the judge decide what should happen.

That is about all I can offer because we are not about to stop enforcing the law in Pennsylvania while we wait to see what this conference produces. I understand the Monongahela conference was first held in 1963 and then again this year without result yet. We don't intend to wait 7 or 8 years waiting to see if these standards that EPA is discussing are appropriate.

So that is the general nature of our program and if any of you have any questions, I will be happy to answer them.

MR. STEIN: Let me make an announcement first.

To Mrs. Coyne and other citizens and other people: We are going to resume tomorrow, and you will testify probably tomorrow morning.

Are there any comments or questions?

MR. LYON: I have one.

I would like to ask Mr. Eichbaum a question that is relevant to the purpose of this conference because this is an enforcement conference, and, as Mr. Stein has pointed out, its purpose is to see that the abatement programs are being carried out expeditiously.

Mr. Eichbaum, has any official from the Federal Government or EPA at any time come to see you about our enforcement program?

MR. EICHBAUM: No, no one has, which was a little surprising to me, since that is the area that I am in charge of. In fact, I have a pile here of — somewhere — approximately 40 analyses that were made apparently by representatives of EPA of various cases which are in the Commonwealth files, and which EPA concludes that they should be referred for enforcement action to the Federal enforcement officials.

I was never contacted by any Federal official about any of these cases, And I just note that in a large number of them we have filed lawsuits. We have, in fact, had trials and gotten court decrees, and they are practically — some of them are so old now, going back to — H. Robertson is in here — nearly a year, that they are finished just about with complying with the court order.

It seems to me that that wastes a lot of the Federal Government's time to do this, when if they had come to talk with the people in charge of enforcement they might have found out more information and we might have been able to help them some.

MR. STEIN: Are there any other comments or questions?

FROM THE FLOOR: Mr. Eichbaum.

MR. STEIN: Now what I am going to have to do — and we agreed to take these questions to them — because of the hour, the people who ask questions will have to come up to the podium and ask them and identify yourselves. Because I don't think we can ask the reporter to pick them all up from the floor.

Would you want to come up? And anyone else who wants to ask a question, just get kind of in line there so we can handle that, because we are going rather late. I think we are just going to have to do this.

MR. KAMBIK: My name is Bob Kambik. I am a student at the Graduate School of Public Health, University of Pittsburgh, and I would just like to ask Mr. Eichbaum if the State is interested in using data that citizens groups will have gathered and will be gathering on the rivers to prosecute or to bring court action.

MR. EICHBAUM: Yes. We are very, very eager to use that data, because it obviously supplements what we have available to us.

You have heard all of the problems of the staff, and if students can go out and get data, we are glad to use it.

Let me give a caveat, which is that you have some fairly serious problems of proof when you get into court, depending upon the expertise of the people who did the analysis of the effluent, and upon the conclusions that they draw about the impact that that is having. So we have to be aware of that problem, but we are perfectly willing to act with you in trying to prosecute whatever violators you should find as a result of investigations that you might make.

We are doing this out in the eastern part of the State; we are doing it in the central part of the State; and we are happy to do it here. I was very pleased to hear Mr.

Marshall's proposal which was to turn everything over simultaneously to every agency, because I think that that would make for some interesting comparisons in action.

MR. NIXON: My name is David Nixon. I am with Penn State University.

I have a question for Mr. Eichbaum.

It is my understanding that in sampling, with a view to Pennsylvania State prosecutions, it is necessary to have some estimate of flow of the discharge, is that correct?

MR. EICHBAUM: I can't say yes or no. I think it would vary from case to case. But I think you can say that many cases, it doesn't -- we don't require that.

I think that we could probably -- let's take an example of where you had treatment facilities installed and there was supposed to be certain quality of discharge, that in many cases without a flow analysis we could bring prosecutions if there were violations down there. And also if you come up with the data that begins to go in the right direction, we are prepared to go out and do that which you may not feel that you are competent or have the staff or time to do.

MR. LYON: We will follow up.

MR. NIXON: Is that a guarantee?

MR. EICHBAUM: It is a guarantee in the sense that

I will do it, yeah. It is not a guarantee in the sense that if you come in with 1,000 cases tomorrow I will do every one of them next week. But it is a guarantee —

MR. NIXON: But it is a guarantee that if effluent is sampled, although flow determination is impossible to make and it turns out that that determination will have to be made before prosecution, can I take this as a definite determination on the part of the State of Pennsylvania that that determination will be made and that action will be taken if the evidence is such —

MR. EICHBAUM: Yeah, yes, there is no problem with that. I have always had a quarrel with you, although I have never met you, that you never gave us any of your information, because you had a lot of stuff that we didn't have — at least a lot of pipes.

MR. NIXON: Well, you have it now.

MR. EICHBAUM: And we have it now, and we will probably be talking to you and eager to do it.

MR. NIXON: Fine. I would add at this point, that if you find it possible to take any action or to make any prosecutions on the basis of that evidence, we would be more than happy to cooperate in any way we can.

MR. EICHBAUM: We will need your cooperation.

MR. LYON: I would like to comment on this point because it does raise a question that has been raised on other occasions. I know this is not relevant to what Mr. Nixon has done because he has dealt with rather significant sources of pollution. But we have had other citizens who have come to us with very minor things — overflowing septic tanks and problems like that — but because of the shortage of staff, we naturally have to concentrate on the big pollution problems first. So that if you come to us with a lot of little inky-dinky things that because of shortage of staff we can't work on, we are always going to put the emphasis on the big polluters first.

MR. STEIN: Are there any other comments or questions?

Well, I think we have had a very productive first day, and we will stay recessed until 9:30 tomorrow morning.

(Whereupon, the conference recessed at 5:10 p.m.)

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A.M. SESSION - - - - - - - - - October 1, 1971

PROCEEDINGS

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MR. STEIN: Let's reconvene. May we get started, please?

As we and some of the State conferees indicated yesterday, we were going to start this morning by calling on the citizen representatives and nongovernmental groups indicating that they wanted to speak, and who, for the very large part, were patient with sitting through the session yesterday.

May we have Larry Block?

STATEMENT OF LAWRENCE G. BLOCK,
TRIAD EXECUTIVE SECRETARY,
PITTSBURGH, PENNSYLVANIA

MR. BLOCK: Thank you for inviting TRIAD to present this statement before the Ohio River Water Pollution Enforcement Conference.

I am Larry Block, Executive Secretary of TRIAD, the Three Rivers Improvement and Development Corporation.

Perhaps it would be appropriate to explain that TRIAD is a nonprofit civic organization whose purpose is to restore the usefulness of western Pennsylvania's rivers to the total community. It is a gathering of the men, women, and the children, in western Pennsylvania to focus their attention and their energies on restoring our rivers with emphasis on the riverbanks. TRIAD also is an organization of leaders — people like Allegheny County's Congressmen, the majority and minority leaders of the Pennsylvania State Legislature, executives of the area's corporations, the Allegheny County Commissioners, the former and current Mayors of Pittsburgh, leaders in education, sports and religion, and other State, local and national leaders. TRIAD does not consider its primary concern to be correction of the pollution problems of the area per se. We are interested essentially in making the rivers more enjoyable and more accessible to the general public.

Obviously, it is vital that the rivers themselves be worth going to if TRIAD's purpose is to be attained, and so we consider it natural that we involve ourselves in matters pertaining to pollution. Dirty rivers are not worth going to. And it is necessary for TRIAD to promote those efforts designed to clean our rivers.

The perspective in which TRIAD operates is a little bit different from that of the agencies officially involved in this conference. Ours is an effort to attain clean rivers as part of our total effort to restore the greatest usefulness of the rivers. In this, we do not denigrate the importance of any element of usefulness the rivers may have. For example, it is very much a part of TRIAD's progress and program to promote the commercial use of the river as well as their recreational use, both active and passive. This approach presumes that it is important for a factory or plant along the rivers to have clean water to use just as it is for a boater, fisherman, swimmer, or water skier.

More important than that, however, is for the community to have clean rivers for the total good of all the people who live, work and play in western Pennsylvania. Even those who might be enticed to the rivers by the shear enjoyment of a tranquil afternoon or evening watching the boats go by, would find it less enjoyable on dirty, polluted rivers. So it is that TRIAD, an organization of the leaders and citizens of western Pennsylvania, is not an antipollution organization as such, but is very much interested in seeing to it that our rivers are made and kept clean. The rivers must be pleasant for our enjoyment, and they must be safe for our use.

It was in this latter interest — the safe use of the rivers — that TRIAD embarked this summer on a weekend river forecasting program. With the feeling of insecurity some people have had about these natural assets, it seemed appropriate that we try to inform local residents as to what they might expect the condition of the rivers to be as they anticipated a weekend of boating, fishing, swimming, or water skiing. And for 17 weekends now, we have reported every Friday on the expected river conditions for the ensuing weekend.

Through the TRIAD Weekend River Condition Report, area residents have been able to know whether they should plan -- or in a couple of cases cancel plans -- to use the rivers. They have known whether to expect good or bad weather, high or low waters, placid rivers or fast-moving currents. They have known, too, through this TRIAD service, whether the rivers would be seriously acidic, or alkaline, or whether they would encounter heavy debris. What was learned by TRIAD, and those who heard the reports on local radio and television stations, was that most of the time the Allegheny, Monongahela, and Ohio Rivers in the immediate Pittsburgh area were essentially free of acid and alkalinity.

On 14 of the 17 weekends that the report has been issued, the condition of these rivers has been good for recreational use. And I think it is appropriate, at this point, to say thanks publicly to both the governmental agencies and the businesses along the rivers whose responsible attitude toward them surely has helped to make the

TRIAD forecasts so bright. For it certainly can be said that their diligence also helped to make the rivers more enjoyable during this summer.

That is not to say that anyone can relax. On the contrary, there is much that needs to be done. TRIAD discovered this to be true on two weekends in particular this summer. At times of high waters, especially after heavy rains, acid in the rivers rose to serious levels. On one weekend in particular, pH readings on the Allegheny River in downtown Pittsburgh were as low as 4.7 and TRIAD warned residents to stay out of the water.

This grim reminder of historic negligence, however, is significant in that it has become the exception in recent years. Today we can report that the rivers were very limited in their usefulness on only three weekends out of 17. On one of those weekends, the cause was high waters that brought dangerous concentrations of debris into and through the city. The debris, of course, came from destructive storms and from riverbanks and is attributable in good measure to individual carelessness. The casual riverbank litterbug is still an important contributor of debris.

The point to be made is that the Allegheny, Monongahela and Ohio are pretty good recreational rivers in the Greater Pittsburgh area even now. They have experienced a respectable rate of improvement over the past decade.

Actually, it was out of recognition of this improvement that TRIAD came into being in the first place. The handful of local residents who got together to organize the corporation, including its president, Arthur Harris, who also is the Manager of Industry Affairs for the Gulf Oil Corporation, took notice of the fact that the rivers were getting better. They were convinced that government and industry were working together well enough to secure a good rate of progress in the years to come. They wondered what would happen to the rivers next, and agreed that the time had come to plan for full use of them as an integral part of the total community. Mr. Harris calls it the Renaissance of the Rivers.

Cursory investigation in the early months of TRIAD's development proved that an organization was indeed needed to foster the usefulness of the rivers and coordinate related activities. The simple facts of citizen interest can clearly lead to that conclusion. Allegheny County has more registered pleasure boats than any other county in Pennsylvania — almost 13,000. There are about 70,000 Allegheny Countians licensed to fish by the State. We soon learned, too, that the ordinary citizen is very much interested in his rivers, when we began 4 years ago to hold what has become an annual weekend carnival to demonstrate our rivers' many recreational uses. These four "River Renaissance Weekends," as Mr. Harris calls them, have brought back to the rivers more than half a million people. And some of them have participated and won prizes in the annual fishing contest TRIAD sponsors, in which the Pennsylvania Fish Commission stocks the rivers with tagged game fish for the month-long contest. Some of the fish we put in the rivers 4 years ago are still being caught and turned in to TRIAD or the Fish Commission.

These are some of the early signals TRIAD received that indicate the strong need for our program. But I spoke also of related activities, and the protection of the rivers is a vital related activity. That really is the cause that brings us together in this meeting. We must work together — industry and government, citizen and organization — to assure that the improvement we have noted does not wane. As I have reported, the rivers generally are in better condition than most people believe. But our tests of acidity do not even come close to covering the full scope of pollutants with which we need to cope.

And, of course, there is always the ever-present danger of catastrophe by accidental pollution in heavy doses. Prevention is the only cure for such a possibility, and we think we are on the way to providing that through TRIAD's

Industry Preparedness Committee. That Committee is organized to put into play the skills, talents, and expertise of area industries to aid governmental agencies in the quick detection, analysis, and solution of any emergency pollution situation.

If I have failed in these comments to concentrate on the Ohio River and pollution problems pertaining only to it, it is because TRIAD looks at these rivers as being joined together in a single constantly flowing system. At least in the Greater Pittsburgh area, what happens on the Allegheny and the Monongahela will have a definite effect on the Ohio.

And if I have strayed too much into an explanation of the problem-solving device the Greater Pittsburgh area has found in the TRIAD organization, it is only to emphasize the point of view that has sustained this effort. In a word, it is coordination -- the kind of coordination that will permit and encourage the focusing of the energies of all the citizens and industries and organizations and governmental agencies on the solutions to our problems.

We still have problems. There are lots of them, even though things are not always as bad as they may seem. I hope that this conference is in the process of taking an honest look at the problems we face as well as the progress we have made. I hope that this conference will result in new coordination, especially among the governmental agencies involved, and new cooperation for the good of the total community. And I offer the assistance of TRIAD in that effort.

Thank you, Mr. Chairman.

MR. STEIN: Thank you, Mr. Block.

Are there any comments or questions?

MR. LYON: Mr. Block -- Mr. Chairman, I would like to say that TRIAD is the kind of organization that makes us very happy to be in this kind of clean streams endeavor because it brings together the many community organizations in an effort to beautify and better utilize the river, and this is what we all like to see.

Mr. Block, would you be willing to comment on your feelings about the report that was presented yesterday by Mr. West? Do you feel that that was an adequate description of the river system as you know it?

MR. BLOCK: Well, of course, many of the technical points that were brought out in the report, I wouldn't be qualified to answer. I will say that recreational-wise the rivers have certainly expanded tremendously. I have been on the rivers for 20 years using them, swimming them. If some of these reports are correct, then maybe that is what some of my problems are, but I have been using the rivers for quite a few years.

L. Block

Activity-wise our rivers have grown tremendously and I feel that, of course, the improvements are showing themselves or people would not be using the rivers. I feel the cooperation between all of the agencies and the industry is here, if we can just sit down. TRIAD, actually, Mr. Lyon, as you know, has an intergovernmental relations committee here locally. Your representatives sit in the meetings, and we meet whenever we feel it is necessary. I think it is necessary now in our local area. But we sit down and discuss the problems that the government agencies have and what they are doing and try to work out any differences, and try not to overstep each other.

We have also printed a booklet that explains all of the duties that the government agencies have, and maybe this should be done on the higher level between the State and the Federal Government.

But basically the report, I have read; I don't understand some of it. Some of the reports on recreational uses I question. Fish -- our fishing contest this year, we had fish that were caught that were tagged 4 years ago in the Steubenville, Ohio, area, and this is game fish. We feel that it is improving. We realize there definitely are problems, and we hope that maybe out of this hearing that sitting down together and working it out -- not only the government agencies, but also the industry — that we will solve these problems and that you won't have to have this type of hearing.

MR. LYON: Thank you very much. We certainly share your view that it is through cooperative effort that progress is made, and we appreciate the very fine report you have given us.

MR. BLOCK: Thank you.

MR. STEIN: Are there any other comments or questions?

Loyal Gregg, Pennsylvania Environmental Council.

STATEMENT OF LOYAL H. GREGG,
PENNSYLVANIA ENVIRONMENTAL COUNCIL, INC.,
PITTSBURGH, PENNSYLVANIA

MR. GREGG: Mr. Chairman, ladies and gentlemen. My name is Loyal Gregg, resident of Allegheny County. I am a member of the board of directors of the Pennsylvania Environmental Council.

For those of you that don't know, the Pennsylvania Environmental Council, commonly called PEC, was formed by the many different conservation organizations throughout the State of Pennsylvania in order that we could have strength in one unified body. There were 75 different organization members — conservation organizations. In addition to that, we have many hundreds of individual members.

I came here with a prepared statement — a little bit technical — but after sitting through all of the session yesterday, I felt that I had something more important to say and I discarded my prepared statement.

If it weren't so serious, this conference would be humorous to someone sitting in the audience listening. It reminds me of an incident that actually happened here in Pittsburgh a few years ago. The police had apprehended a man accused of kidnapping and murder, and he was in jail. The District Attorney heard some way that the FBI wanted to take their prisoner, so the District Attorney called a State Court Judge, who was in the mountains, asking him to come back on a Saturday morning to hear a petition that he was going to present against the FBI. In the meantime, the U.S. Attorney jumped the gun and went in before a Federal District Judge and obtained an order awarding him the custody of the prisoner.

The District Attorney then appealed to the U.S. Court of Appeals in Philadelphia, and through phone calls — still on a Saturday — they were able to rake up three Circuit Court Judges. The Circuit Court Judges overruled the

District Judge, awarded the custody of the prisoner back to the District Attorney, but allowed the FBI certain visitation privileges.

In other words, the FBI's claim was that they needed the prisoner, because they wanted to catch his accomplice.

The people here didn't get too excited about it because here were two politicians fighting each other, and the people didn't get too excited because the defendant was in jail.

Now, I submit that the men sitting at this table don't have that luxury. As I listened first to, I guess it was Mrs. Madoff (the lady formerly from GASP), I got a message -- not from what she said, it was the tone of voice. I had hoped the members sitting up here got the same message. It was a message that I got. The ladies aren't going to sit still for fights between bureaucrats.

I wholeheartedly endorse the remarks made by the young lady from the League of Women Voters. I wholeheartedly endorse the remarks made by Dave Marshall. I thought we heard something intelligent from him. Mrs. Newman, the present president of GASP, alluded to our constitution. I would like to be more specific. The citizens of this State amended our Bill of Rights by adding this particular section: "The people have a right to clean air, pure water, and to the preservation of the natural scenic, historic, and esthetic values of the environment. Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustees of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people."

Gentlemen, I consider that a mandate by the people.

Now I would like to get a little bit specific. I am appalled at the friction that has been generated throughout this conference. I think we all know that we are only going to accomplish something if we have a constructive and a cooperative Federal-State effort. Anyone that sat through this conference and listened to the testimony knows very well that we don't have a cooperative and constructive State-Federal effort. In fact, the only thing I could see is that the men couldn't even agree on what they were disagreeing on. We don't have any relationship existing here except one of antagonism.

Now from the evidence that I have heard here, I have to put that blame on EPA. I do that because of the report that was filed. The Colonel, in an answer to one of Mrs. Madoff's questions, categorized that report I thought beautifully. He said this evidence won't stand up in court.

I submit it won't stand up here. I don't know whether Mr. Lyon is a lawyer or not, but as a lawyer who spends 90 percent of his time in litigation in court, I submit to you that I have never heard a report or a piece of evidence so discredited by cross examination in my life. In court all of the truth is the only thing that is acceptable. Half-truths are just as inaccurate as misstatements. I don't blame the State men for being upset with that. I would be, too, and I am. I wonder why they bothered to come.

What I would like to see -- and I mean this wholeheartedly -- I would like to see this particular conference change directions. Let's make an effort on the part of everyone to try to do some cooperating. I think we have got to admit that we in Pennsylvania here are going to have to rely upon Mr. Eichbaum for the enforcement. If we don't, I am afraid we are lost. Let's just assume that Mr. Eichbaum and Mr. Lyon took all of their papers, all of their many complaints, all of the evidence that they have gathered and shipped it off to Washington to the EPA. Now you and I know what would happen: absolutely nothing, under the present setup, because they are not set up to enforce those claims.

If they have to send them back to the U.S. Attorney for prosecution, he is much too busy on more violent crimes.

L. Gregg

We are going to have to rely here upon our State people to enforce the law. So I get back to what Mr. Marshall said. This duplication of permits is ridiculous. The duplication of paper is ridiculous.

You know, we are all going to be smothered in paper some day. If filling out Federal forms is taking time from our State inspectors, then I submit there is something wrong with everything in the system.

I think what the lady from the League of Women Voters said: We need Federal funds to implement this thing. That is one thing EPA could do. EPA could say to our State men: How can we help you? What can we do to help your job?

Now they can also say -- and we want them to say this; they could come in here and say: You are not doing your job. We want them to say that too, but this petty bickering going back and forth where -- I think that has got to stop because the taxpayer is getting short-changed. I for one am through paying huge taxes for nothing. If there is some political credit to be obtained by all this, is that what the problem is? I only heard one encouraging note all day yesterday. Mr. Eichbaum told Mr. Stein that he would make available the information he had in his files to the Federal Agencies; and Mr. Stein said if you people will call me you can have anything we have.

Do you mean to tell me that it took all of this time to get those two agreements out of these agencies?

What I am asking: I am asking for these gentlemen, when they go into executive session, go in there with the avowed purpose that they are both going to try to come up with some common ground where they can cooperate to try to accomplish the job.

Thank you, gentlemen. (Applause)

MR. STEIN: Are there any comments or questions?

MR. LYON: I have one comment. Mr. Gregg, you have given us a very thoughtful and meaningful statement this morning, and it means a lot to me, because I feel very strongly about what you have said.

There is one -- I think -- very important point that we should take away from what you have said too that I want to make here -- that what happened here yesterday is not just petty bickering between some people. I am not an enemy of Mr. West, and Murray Stein and I have been friends for 20 years. But Murray Stein is not allowed to call me. He is not allowed to discuss any of this with me before we have these conferences.

The problem really is much, much deeper than that, and it isn't just EPA; it is partially EPA. The problem is the myth that has been created by many people to think that the only way in which we are going to solve the Nation's water pollution program is to have a national — I am sorry — a Federal program and Federal enforcement. That battle is going on right now today in the Congress, in the Senate Public Works Committee. The Federal law is being rewritten to federalize this program completely.

Now we have testified before the Congress — Pennsylvania has done it time and time again — and has said we can't have just a Federal program. What we need is a national program in which the Federal Government plays its own proper role of making sure that they are good and strong State programs, and where there aren't good and strong State programs, helping strengthen them. And if that doesn't do, then naturally they do have to step in.

But that is not the present Federal posture, either in the Congress or in the executive branch. The posture is that the Federal Government essentially shall take this program over.

You can see this reflected in the amount of money that is given to the States, which is 1 percent of the Federal dollar. So this issue goes much deeper than what might look at the surface here as bickering between people.

Basically, the policy that is going on in Washington is to federalize this program rather than to nationalize this program, and that is the real battle that needs to be fought. And it is being fought right now in the Senate Committee on Public Works which is rewriting the Federal water pollution law, and the decision is going to be whether it is going to be a Federal program or national program, particularly on the issue of the permit system.

There is much more than meets the eye in this permit system. If there is a Federal permit system, this not only means that we will have a Federal program, but it means that all of the economic decisions regarding the development of the Monongahela and the Allegheny and all of these rivers will be made by one man, and that is the Administrator of the EPA. That means that the people of this area and the people of Pennsylvania will not have the power to shape their own economic future in the way in which they should be able to. Those decisions will be made in Washington because water and water quality management are basic economic decisions relating to the allocation of resources. And the battle that you saw here yesterday is merely a symptom of a much bigger problem.

Thank you very much.

MR. STEIN: Any comments?

Bruce Godwin.

STATEMENT OF BRUCE GODWIN,
GROUP AGAINST SMOG AND POLLUTION,
PITTSBURGH, PENNSYLVANIA

MR. GODWIN: I am Bruce Godwin, employed as a systems analyst for Environmental Systems. I am a member of the GASP Scientific Committee and of its Water Committee.

A few personal observations: It has been my experience once several years ago to swim in the Ohio River below Cincinnati, and it wasn't a very clean river. I would like to see it cleaned up.

I profess a little bit of confusion about the delineation of the areas relevant to the Ohio Basin and to the Monongahela Basin. There seems to be an overlap. I am sure you have observed this in the Ohio report from EPA by contrasting it with the report for the Monongahela — some 40 miles of overlap on the Monongahela. I would like to observe that that doesn't seem to be too rational except on somewhat pragmatic grounds of the weight of nature of pollution entering from the different sections of the Monongahela River.

Perhaps one of the persons present could explain why that overlap is present.

I do think that cooperation is needed between the agents of the Federal and State Governments. However, it seems to me that if they can't cooperate, they shouldn't bother each other. There seems to be an awful lot of that and I think there is an awful lot of wasted effort at least reflected in the conference so far.

Well, I have a brief statement prepared by the GASP Water Committee.

GASP notices a popular bias favoring terminal over closed-cycle treatment for both municipal and industrial wastewater. The cost of treatment of industrial waste is a cost of production and should be borne by the producing enterprise. Industrial producers should not be allowed to utilize public treatment facilities but should be expected to construct, maintain, and operate capture and reuse facilities or, at the very least, terminal treatment equipment.

Both industrial and municipal waste treatment facilities should be designed and operated so as to maintain as far as technology allows the quantitative and qualitative integrity of the water resource in the Ohio River Basin. Certain latitude should be permitted in method of treatment -- the objective is clean water. Ultimately, we should expect the preparation for reuse of even the sludge which ALCOSAN now incinerates.

In view of the fact that even terminal treatment facilities are not in use, GASP would like to know what action EPA is going to take against those enterprises which have not applied for discharge permits under section 13 of the River and Harbor Act of 1899; and when will EPA act? We suspect that EPA is short on manpower and other resources needed to police violations on a national scale. If this indeed is the case, we strongly urge EPA to train and guide the many citizens who are more than willing to contribute millions of dollars worth of effort to ensure that the provisions of the permit program under the Act are enforced. GASP thinks that more enforcement support to the State might aid direct citizen involvement and remove the heavy emphasis on terminal treatment.

Thank you.

MR. STEIN: Thank you, Mr. Godwin.

Any comments or questions?

MR. RILEY: Mr. Godwin, you raised the point concerning the apparent overlap between the Monongahela Enforcement Conference and this conference. You also alluded to the fact that the possibility was of the predominance of heavy industrial waste discharge concentrations in the Monongahela, and that is precisely why that is included in this conference.

Additionally, the Monongahela conference held here last month was primarily aimed at the problem of acid mine drainage, in an attempt to keep both areas separate so we can address each one the most efficiently. That is why we have handled it in this manner.

MR. GODWIN: Does that mean that the Monongahela Basin should be interpreted as extending no further downstream than Allenport?

MR. RILEY: No, it does not.

MR. GODWIN: So there is an overlap.

MR. RILEY: Right.

MR. GODWIN: Thank you.

MR. STEIN: We have one further question to ask for clarification. I thought we tried to answer that yesterday, but maybe in light of the discussions, it might have been missed.

Where an industry does not file an application for a permit, as soon as we identify that industry and ascertain that we have jurisdiction, we intend to go ahead. Now we do believe that we do have the manpower to handle this.

What you have to prove in a case of this sort is that an industrial waste is being discharged without a permit. And if there is no permit, it is fairly easy to get the evidence that an industrial waste is being discharged without that much work.

One of the problems getting people who do not file applications for permits is that this is like trying to prove a negative. You always have to find someone who didn't do anything.

Colonel West has a list of industries, and we have compiled lists of industries in each State, in each Corps district; if we don't get a permit for an industry we believe is on the list or we know about, that is checked. Often it is found that they have gone out of business, have changed their name or there is some other reason.

But when this shows up, we will file the case -- and we have started that process already -- and as soon as that information is made available to us, we will institute an immediate investigation. I don't think that there is any reason for anyone not to comply with the law that is on the books, and it is our job to enforce that law.

Mr. Fabry.

MISS CAREY: Mr. Stein, he appeared yesterday and is not able to be here today and he would like his statement submitted in the record.

MR. STEIN: Without objection that will be done.

(The document above referred to follows in its entirety.)

OHIO VALLEY ENVIRONMENT COUNCIL

SUBMITTED TO THE INTERSTATE ENFORCEMENT CONFERENCE ON
OHIO RIVER POLLUTION PITTSBURG, PENNA.
Sept. 30/Oct. 1, 1971

Gentlemen:

I am Paul N. Fabry, a resident of the State of Ohio, appearing today as a private citizen and as a representative and spokesman for the Ohio Valley Environment Council. A citizen coalition which emcompasses eight counties bordering the Ohio River. Hancock, Brooke, Ohio and Marshall counties in the state of West Virginia; Columbiana, Jefferson, Belmont and Monroe counties in the State of Ohio.

By now, every one knows pollution is harmful, costly and unjust. But it stays with us because it still pays. It pays a pollutor who has always used the river as a dumping ground to avoid costly filtering equipment. It pays his customers who buy goods at lower prices and join him in passing the ignored costs to those down stream.

Our society, which favors a self-regulating allocation of raw materials by use of a monetary system of values, has not seen fit to put the true costs of pollution into this choice mechanism. We are reduced to solving our grave pollution problems by exhorting a latenly blooming moral pressure, marshalling a poor array of laws which ill define pollution and are administered by an inadequate, financially strapped administrative organisation. Here and there we throw in a loan, tax write-off, or other subsidy. In belief that the ends justify the means, we have even enlisted the "Baudy house" laws.

Waste disposal should be a legitimate cost of production. It should not be treated in a manner different from any other legitimate cost. This should be made national policy and our industrial leaders should accept this principle. They are not the only ones entitled to use our water resources. The public has a right to pure drinking water. Citizens have a right to recreational uses of waterways.

Our rivers and lakes belong to all Americans. They were not meant to be the

(continued on page 2)

private dumping grounds for industrial concerns. Since they are in public domain, the public has a right to charge those who despoil them and to spend the monies collected on restoring the quality of the water. There is no reason why all Americans should be made to bear the cost of cleaning up water which industry has used without any charge or penalty in additional taxes to carry away its waste products.

There is no justification in this polluted day and age to contimue to write off the rivers as being convenient sewage systems to be used and abused by industry and municipalities.

In conclusion, each pollutor must be assessed and charged with penalties in substantial sums based on the quanity of the waste discharged, and also on its relative strength and toxicity. Effluent charges should be considered, whereby a discharge is rated according to its severity, and licensed accordingly. We are granting licenses to pollute our rivers and it would be better to assign them at their true market value rather than give them away.

Paul N. Fabry
P.O. Box 239
Smithfield, Ohio 43948

MR. STEIN: May we have Mrs. Millard Turner?

Mrs. Turner.

STATEMENT OF MRS. MILLARD TURNER,
STATE CHAIRMAN, PENNSYLVANIA FEDERATION
OF WOMEN'S CLUBS, NORTH EAST, PENNSYLVANIA

MRS. TURNER: Mr. Chairman and conferees.

Thank you for inviting us to participate in this conference. I am the State Chairman for the Pennsylvania Federation of Women's Clubs, and both the general Federation and the Pennsylvania State Federation of Women's Clubs have vigorously supported legislation and encouraged enforcement of strict standards for better water quality and pollution-free waterways.

I might add that I am not from Allegheny County but I am from that much discussed Lake Erie area.

With more than 80,000 Pennsylvania women represented by the PFWC, it is my duty to keep our members informed and I endeavor to present both sides of the question so that an intelligent decision can be made based on accurate information.

I am sure that everyone here realizes how difficult this task has become with constantly changing conditions and rapid technical advances, what is described and released as adequate today is outdated tomorrow. This is very discouraging to concerned citizens and taxpayers who continue to suffer from ill effects, and are also called upon to pay the bills.

Mr. Horton raised the question of correcting one bad situation but creating another equally as bad or worse. This is evident in the recent information on the effect of detergents on rivers and lakes as opposed to chemicals and other products used for the same purpose.

Mr. Lyon raised the question of standards and procedures reminding us that industries and municipalities might take a wait-and-see attitude.

We recognize the vital part that the threat of enforcement plays in bringing and keeping polluters into line, and it is most unfortunate that enforcement has been one of the weakest links in the chain.

We sympathize with industry, municipalities and governmental agencies, be they State or Federal, in trying to meet these constantly changing demands. It is our hope that concrete recommendations will come from this conference, asking first that national water quality standards be set up and adopted, and the national standards be stated fully and clearly, and that all future reports state all of the

Mrs. M. Turner

facts omitting no information which would influence public opinion or distort the picture presented. What is currently being done to comply is important to me.

Second, the information gap is incredible! Either the Federal and State Agencies are guilty of grossly misunderstanding each other, their purposes and motives, or what is even more disastrous, an almost total lack of cooperation and confidence.

I submit that much time, effort and money could be saved if all efforts and complete information was shared in a real cooperative plan with the industries, municipalities, agencies, Federal and State Government, participating.

Let's really communicate and stop kicking the environment around as a political football. We all suffer and no one benefits -- even the polluters. Let's pool our efforts.

Third, we are aware that many polluters -- industrial, individual, municipal, or governmental -- will do nothing to improve the situation without being forced. Therefore, we would urge that State and Federal Agencies plan their strategy together, and move as one, not as separate entities.

We would also urge that enforcement be on a fair basis, in all States, treating all polluters as such; not picking a few large or small ones and allowing others to go free.

I say this with tongue in cheek because of the different interpretations of the word "fair."

Four. It would appear that State agencies are hampered by a lack of staff and funds. We would hope that a truly concerned EPA will take a second look at its budget and priorities, and find that they can distribute them in a more equitable manner sharing information, personnel and funds.

In closing, I feel that the topic of the conference was misleading, if the purpose was to establish new timetables for compliance of standards already agreed upon by the State and Federal Agencies. It would seem that any change in these agreements would be the responsibilities of the Federal and State Agencies, and the parties directly involved in the change.

Thank you.

MR. STEIN: Thank you.

Are there any other comments or questions?

Do you want to make a statement?

MR. NIXON: Yes, sir.

MR. STEIN: Why don't you come up.

MR. NIXON: I am David Nixon, Penn State

University, the McKeesport campus.

I would like to ask Mr. Stein a question about a statement which he just made that I find rather disturbing. If I understand you correctly, sir, you are saying that EPA will investigate automatically or expeditiously those companies which do not apply for permits but which are nevertheless on the Corps of Engineers list as probable dischargers. That insofar as it goes is fine. But it seems to me the lesson of that to industry is to submit applications for permits, but only partial applications.

The problem, it seems to me, is that many mills, for example, have as many as 40 discharges -- some even more. If an industry submits applications for 20 discharges, it seems to me there would be no automatic, or there would be no reason for EPA to go out and sample those mills.

MR. STEIN: If I have given you that impression, I think I have given you the wrong one, sir. In the example you give us, if we get an application from a mill that has 40 discharges or pipes, and they have only indicated that they are filing on 20, we will take the same kind of action.

MR. NIXON: Surely. If you knew they had 40 pipes, but how would you get that information?

MR. STEIN: Well, we have been checking this information rather closely from our other inventories, and this is a problem that we have worked out with our people in the permit program. We are paying special attention — the permit program is -- to the permits they get from industries where it is suspected they have many outfalls.

Our indications from the permit program -- and I don't know whether any of the regional representatives are here -- but the indications that I get from our permit people nationally is that most of the industries do not have that many pipes; that, as a matter of fact, they are finding -- what was the average number of pipes? --

MR. RILEY: I don't recall.

MR. STEIN: -- something rather low, like three or four. However, we are looking with particular care at the industries which we feel may have a lot of pipes and a complicated operation, and these applications and the industries will be looked at very closely.

MR. NIXON: If I am correct, yesterday, sir, both Mr. Lyon and yourself responded to a question from Michelle Madoff to the effect that no adequate list or inventory of discharges exists in the State; no adequate inventory of discharges exists in the Federal Government. So, again --

MR. STEIN: Sir, if I may just say -- I think what I said was we had no list to comprise all. "All" is a big word like "nothing." I said we had a "fairly good" list of municipalities which aren't covered by the permit program -- and she asked for all sources of wastes. But I said we did not have what I would consider a fairly complete list of industries; that through the permit program and with the permits coming in, that list was rapidly, or this situation was rapidly being changed.

MR. NIXON: Yes, but isn't this in the end a circular argument that you are making? You are saying that when people make applications for permits, you will take reference to your various inventories to find out if they are making applications for all of their permits.

I ask you where those inventories come from and you say from refuse permit applications. Now it seems to me that that is clearly circular.

I make these points, sir, not for the purpose of being merely contentious but to emphasize, if I may, the absolute necessity for on-site grab sampling. There is no substitute for it, And so long as this information has to come from industry on a voluntary basis, it seems to me we are never going to have an adequate inventory, And this, it seems to me, underscores the absolute necessity for governmental reenforcement of citizen volunteers who are willing to collect evidence and to do it correctly.

MR. STEIN: Well, I agree with you. I think the issue here certainly, the way you get information -- and we are stepping this up -- is on-site grab sampling up and down the river, and identifying every source to see if that source is covered. And I for one am for all encouraging citizen participation.

MR. NIXON: That is fine. I hope that encouragement will include chemical analysis on a broad scale. Now that is always the Achilles' heel of citizen action, that if they have to have significant governmental aid and assistance in their efforts to augment governmental programs that make an industrial discharge inventory -- now I certainly have no complaint personally. John Zavodni and I have had excellent cooperation up to now.

But the point that we were attempting to make in our effort to realize a more vigorous enforcement of the Refuse Act through our own sampling program was to encourage other citizens to do this across the country on a fairly broad scale.

It seems the importance of that is augmented by the absolute lack of personnel at any governmental level to do this on its own, or on their own -- to collect this data on their own. They just don't have the resources.

MR. LYON: Mr. --

MR. NIXON: Yes, sir.

MR. LYON: Mr. Nixon, I completely agree with you. We absolutely — we welcome volunteer efforts, and what you have and Mrs. Madoff have said yesterday have helped me conclude that what we ought to do is get you and she and we together to try to organize this kind of effort in a more comprehensive way so we can really go to town on the kind of volunteer effort you are suggesting in this area.

We are planning, with the small budget increase that we are getting, to establish a State laboratory in the Pittsburgh area, and I think that will be a great help toward that kind of an effort.

MR. NIXON: Well, I would certainly think so. And I would reemphasize that I bring up these points not to raise contention for its own sake, but simply to emphasize that at least at the present moment there is just simply no substitute but citizen collection of data if a reliable inventory of discharges is going to be made on a national or even a statewide scale.

I would like to pass from that to one further point, and that is that I was pleased to take note in the GASP statement that GASP states an awareness of the fact that discharge standards, as such, create a bias in favor of terminal treatment; that is, to the extent that in an enforcement conference there is an emphasis upon or a fixation upon the maintenance and enforcement of discharge standards that always implies terminal treatment.

Now the point that I think needs to be made is that recycling or closed-cycle, zero discharge operations are the ideal situation that we are all seeking in cleaning up our water supplies. The question seems to be: How does one get to the goal of zero discharge, closed-cycle operations, in a practical matter? And I would suggest that there is a way to plug this desire, this goal, into the ordinary on-going permit application and granting process.

It seems to me that when industries apply or reapply for permits that the first question that should be asked is: What is the flow of the discharges in question? The State or EPA might select arbitrarily or for good reasons, let's say, a million gallons per day effluent discharge as an automatic triggering point. It might be 2 million gallons per day automatic triggering point.

At that point, if an industry is discharging effluent in excess of that amount, then two other questions would be asked: Is it technologically feasible to recycle, to build a closed-cycle operation, zero discharge in the case of the industry applying for a permit? This would also include, of course, questions of economic feasibility.

But if the answer to all of those question is yes --

if there is a discharge from a given mill in excess of 1 million or 2 million gallons a day, if it is technologically and economically feasible to recycle that effluent with zero discharge -- then it seems to me, as an automatic part of the permit-granting program, that at most a 1-year permit be issued which would be called a planning permit perhaps. And that permit could be renewed on one condition: that at the end of the year, the applicant provide plans for a recycling operation. At that time, when those plans are submitted with the application for a renewal of the permit, a 2-year nonrenewable discharge or rather construction permit could be issued.

Now that permit, again, I would emphasize is nonrenewable. That would give the industry in question ample time in almost every case to construct the necessary facilities for a closed-cycle, zero discharge operation.

Now this is particularly, it seems to me, relevant to our river basin, both the Ohio and the Monongahela Basins, in that at least insofar as industrial effluent is concerned, we are talking about largely effluents from steel mills.

Now the Kaiser experiment with closed-cycle operation, the Armco experiment with closed-cycle operation, has demonstrated the effectiveness and the technological feasibility and the economic feasibility of closed-cycle operations for steel mills. It seems to me that there is little excuse for allowing simply terminal treatment to continue when closed-cycle, zero discharge operations are possible.

And I thank you.

MR. EICHBAUM: Mr. Chairman, I wonder if I might just make a few responses to that.

MR. STEIN: Surely.

MR. EICHBAUM: On your first point about the citizen participation, I just note that yesterday Mrs. Madoff spoke to the same point and requested essentially that the State set this up. You directed your request that EPA set this up. And I would --

MR. NIXON: If I could make the point that the citizen doesn't really care who helps him get --

MR. EICHBAUM: I think we ought to have one program though, and I think the citizens ought to decide. I think they ought to care about who does it. And I think that is as much a part of getting it done as who does it and where the information flows. And I would hate to see you and Mrs. Madoff bumping into each other in your canoes and competing one for the State and one for the Federal Government. (Laughter)

MR. NIXON: I dare say there are plenty of sources for us to share.

MR. EICHBAUM: Presumably there are. But I seriously make that point -- that I think that the citizens have the responsibility to decide where they want their input to be and that they should concentrate on that kind of approach.

Also, with regard to your closed system point, I don't have the statistics in front of me right now, but I know that one of the things that we have found in our enforcement program -- when we get into a fairly tough enforcement situation, either as a result of court action or impending court action -- that industry has found, and we have pushed them in the direction of discovering that that, in fact, is the only solution to their problem.

We have at least one steel rolling mill now which is going to be submitting to us a proposal next week for a closed system. We have some paper mills that are doing the same kind of thing. So I think that while it may not be a matter of official policy that, in fact, what you propose -- which I think is an excellent direction we should be going -- is happening in the context of when we get into tough enforcement problems.

MR. NIXON: Thank you.

MR. STEIN: Thank you. Any other comments or questions?

If not, thank you very much.

I think we will go back to the State presentations again.

I really appreciate the citizens' presentations.

Yes.

MR. LYON: We have got some more.

MR. STEIN: The State will call the others.

So far this morning I would say that what we are hoping to achieve here is a cooperative program. I do have the feeling that the job of pollution control is so great that we are going to need all of the resources we can get -- State, Federal, local, citizens, whatever we can get -- to apply to the progrm.

I think Mr. Lyon has indicated to you the extent of the national public dollar -- this is State and Federal -- that goes into pollution control. It is very, very small. So we have to put our complete effort forth and work on this.

I would like to --

MR. EICHBAUM: Let me just say I agree with that, but we shouldn't both be doing the same thing; we should be doing separate things that are part of the total picture.

MR. STEIN: I think so and I fully agree with that. That is why I think we are here. I am not sure that many people understand the purpose of what we are doing. I have a suspicion that sometimes when you have Federal-State relationships -- and they are very difficult for some of the reasons that Mr. Lyon indicated, and you may have one view or the other, or you may view his analysis as correct or not -- but there are many forces in Federal-State relationships that are sometimes beyond individuals.

And when I see this operate, and if there is an absence of tension, then I figure something is wrong. If there is tension between the State and Federal officials, I think that some of that certainly within limits is an indication that everything is normal. You wouldn't expect it to run very smoothly.

But I hope we can come up with it.

Now I would like to indicate at this point, of course I can call Mr. Lyon at any time. I know that. But I think the day-to-day relationships that we have to have in this kind of operation is for us -- at least in the Federal Government, we believe -- to run this through a regional office. So the usual contact with you people will be our regional representatives. It will only be on the rare case or rare occasion that the people from Washington will contact you.

If we are going to divide up the work, this is the way it has to be done. Before we turn this over to Pennsylvania, I would like to point out, at least under this section of the law and the way we operate here, once we arrive at a program, we would turn that over to the State for action under its own laws and regulations to do, the exception being any specialized things that the Federal Government had to contribute.

So we are dealing with a phase of the Federal-State cooperative program, and I think the purpose is to decide what each of us is going to do and to decide responsibilities.

I suggest that, since this is the law we are operating on, we certainly are ready to cooperate with the State in that spirit, as we have done with many, many other States as we worked out these joint programs.

MR. EICHBAUM: Mr. Stein, let me just say that I would have thought that this conference was an unusual thing in which the chief enforcement officer -- I understand that is you -- for EPA, ought to have contacted the enforcement officer for the State prior.

But I extend to you an invitation and I would hope that you might find the opportunity between conferences to get up from Washington to Harrisburg and sit down and see what we are doing.

MR. STEIN: Well, I would be delighted. I always love Harrisburg and that wonderful hotel.

MR. EICHBAUM: You are unique in that.

MR. STEIN: Well, maybe I am not unique, you see, because you just indicated the amount of time I spend there. That is maybe why I love it.

But, of course, you people are entirely welcome to come down to Washington. You do know we have established an office in Philadelphia — our regional office in Philadelphia. And the regional people will be in touch with you on a day-to-day basis, and in cooperation with them I will be very happy, when it is considered appropriate, for all of us to get together. I am sure this will work out, and I am sure this has been, I think, a helpful meeting in getting to know you and know the problem.

Do you have any more, Mr. Lyon?

MR. EICHBAUM: I had a couple of comments that are somewhat a continuation of yesterday, and also to go to what you just said.

I would like you to try and sort of outline for both the conferees and the people that are here what you see are the consequences that can flow from this conference as Federal action is concerned.

MR. STEIN: All right. When we are dealing with an interstate stream, we have to make a determination of whether or not there is interstate pollution. Now the next thing we have is a statement -- at least there is such a statement in the report, and I haven't heard anything to the contrary -- that there has been a time schedule which had been submitted perhaps on other programs and not completely met, that the State and possibly ORSANCO have taken action to suggest that there be a modification of the time schedule. The Federal Government has not taken an action on that time schedule. We presumably had approved or signed off on another one. This is something that we talk about as unilateral action on the time schedule. I am not saying that the modifications you made are not entirely reasonable, but this is a question of the Federal Government to have an evaluation for approval of their time schedule.

Then if there is a shift in this time schedule and we get a determination of exactly what kind of treatment we have to get -- and this is another point in this -- at the end of the time schedule, I think the objective will be that the State be given -- and I am sure and hope they will be given -- an opportunity to take action under State and local law to achieve this. If this is not achieved, there are other courses of Federal action which may be brought to bear.

But I think at that point the State, the municipalities, and the industry will be on full notice what the agreement and the schedules between the States and the Federal Government are in this area.

I hope we will have a reporting system on this, and that under the State law you will be able to go ahead with the program.

Now I don't know -- and I have no way of predicting this until I hear from these technical people in the session -- there may be some technical assistance that the Federal people can give you to carry out this program. If it does, I will be glad to take your recommendations and see if I can recommend it.

MR. EICHBAUM: One of the things that you have mentioned -- and, first of all, you mentioned not only the time schedules, but you mentioned the standards, and this is something that I want to be perfectly clear on.

As I read the statute, the statute does not provide that this kind of a conference is the mechanism for changing standards. It does provide that if the time schedules for achieving standards which have been previously set are not being met or did not appear to be appropriate, for examining that possibility. But it doesn't have anything in it about changing standards, and I thought that is what you said, that standards includes implementation plans which includes the kinds of things that you were addressing yesterday with regard to Mr. Wald and ORSANCO. And I think that the kinds of comments which you made to Mr. Wald and which were addressed to the ORSANCO situation were highly inappropriate -- ALCOSAN, excuse me -- to ALCOSAN were highly inappropriate and were really an unlawful exercise of Federal power, because you don't have that power in this conference.

MR. STEIN: Sir, we tried this and I hope we won't go into this again.

We are not revising the standards here.

MR. EICHBAUM: As I understand the definition of standards it includes stream criteria and implementation plans.

MR. STEIN: That is correct. But, sir, let me, again, just try to do this historically.

This procedure was in the law long before we had the standard provisions in the law.

MR. EICHBAUM: Which procedure?

MR. STEIN: The conference procedure that we are in here; what we are dealing with today.

We are not dealing with a violation of these standards, per se, here. Of course, we have to —

MR. EICHBAUM: That is what you say you are dealing with. You are saying that the plan, if we look at ALCOSAN, will violate Federal standards which have been apparently redefined in the course of preparing the Federal report.

MR. STEIN: What I think we were saying, sir, is that what we are trying to do here is protect the health or welfare of persons. Any pollution which endangers the health or welfare of persons is subject to abatement. We are trying to determine whether any source, any scurce, any municipal or industrial source will do that, whether the plans they have under consideration now are adequate to do that, and whether the time schedule in which they have to do that is reasonable. That was the sole direction; that is the scope of what the conference can do, and it has nothing to do with revising the standards at all.

MR. EICHBAUM: What is an implementation plan?

MR. STEIN: An implementation plan relating to the standards, you are talking about?

MR. EICHBAUM: Yes.

MR. STEIN: The implementation plan usually states the time schedule with interim dates within which standards are to be met.

MR. EICHBAUM: And isn't that what we are here to discuss, as to whether or not they are adequate, according to your definition?

MR. STEIN: Not on the standards. We are here to discuss whether the proposed remedial facilities being put in by the dischargers are adequate, and whether the time schedule is adequate.

MR. EICHBAUM: And the time schedule is a time schedule for achieving standards in the stream.

MR. STEIN: That may be, but this is not what we are discussing under this provision of the law, as we pointed out.

In other words, what we have always had to do, after the standard provisions came into being, is get pretty close -- as a matter of fact, identical coordination between the time schedule in the standard and the time schedule for the enforcement conferences because it would be ridiculous to do it any other way.

MR. EICHBAUM: The point seems to be though that the enforcement conference -- and President Nixon said this earlier this year -- is a pretty weak and ineffective mechanism and, in fact, is probably not worth going through with. But, in fact, those changes which you say have come into the law since the provisions for the enforcement conference do bring about changes and do limit what the enforcement conference can get at. And my point is that what an enforcement conference does or does not do, what conclusions it reaches, has serious consequences for the people and the industry and the municipalities in Pennsylvania; namely, that eventually the Federal Government will come in with whatever enforcement action seems to be appropriate.

What I am trying to get at is that I think that some of the things that we are addressing in this conference -- namely, the kinds of approaches that were made with the ALCOSAN situation -- are far far beyond that, that there is another mechanism that the Federal law provides for to address that question, and if that is a problem -- and it may well be -- that we should be using that mechanism which the Federal law requires that EPA use.

My point is that I do not want to see a situation develop where through an exercise of Federal power -- which it really is -- without the kind of founding it ought to have in Federal law, you come in and take enforcement action.

We have 40 or so industries on which apparently decisions have been made -- and I will read -- "In summary, it is recommended this case be referred to enforcement for further action."

Now there are 40 of those, largely based, as I pointed out yesterday, on incomplete data. I think we ought to discuss that data. I think that is probably what we ought to be here to talk about, whether those things make sense.

But you can come in and take an enforcement action after only going through a certain process required by law, and I don't think you are going through it.

MR. STEIN: Well, sir, you made that point yesterday; we have tried to answer it again today. It will be noted on what you have said, but we have explained this law as we have. I would just like to make one point. I think about $5 billion worth of work has been scheduled as a result of enforcement conferences throughout the country.

MR. EICHBAUM: I guess the President was wrong.

MR. STEIN: I think they certainly can be streamlined, but it is very, very odd, if they are such a weak and ineffective tool, how they can have such grave consequences for the people of the valley.

Again, I don't want to set this up in an adversary way, but I think this has been carefully cleared. We are here, as we have been in many other places, in cooperation with many other States, under what was considered in our determination a full and adequate legal justification under the statute.

Now if the people from Pennsylvania have a difference, they may report it.

MR. EICHBAUM: Well, I think that the point is whether we are addressing whether or not the standards that have been set are going to be achieved within a certain period of time, and that is what I want to see this conference limited to.

MR. STEIN: Thank you.

MR. LYON: Mr. Stein, I know some of our other conferees must go, and we don't want to take any more time. I would like permission, at the end of this conference, to introduce into the record efforts we have made repeatedly to give EPA the various schedules that you say you don't have and if I can have that permission, I would like to do that at that time.

MR. STEIN: The record will remain open for you to do that.

May we call on West Virginia?

STATEMENT OF JOHN H. HALL,
ASSISTANT CHIEF, STATE OF WEST VIRGINIA,
DIVISION OF WATER RESOURCES,
CHARLESTON, WEST VIRGINIA

MR. HALL: Mr. Chairman, I would not read the report in its entirety. I would like to submit a copy for the record and to ask that it be made a part of the record as if I read it in its entirety.

MR. STEIN: Without objection that will be done.

(The document above referred to follows in its entirety.)

OHIO RIVER CONFERENCE ON WATER QUALITY

STATE OF WEST VIRGINIA

PITTSBURGH, PENNSYLVANIA

SEPTEMBER 30-OCTOBER 1, 1971

I. Introduction

The purpose of this report is to provide information on the current status of water quality and pollution abatement in the West Virginia portion of the Ohio River from Chester, West Virginia, to the West Virginia-Pennsylvania state line. Further, it is hoped that the report addresses the problem before this conference.

II. Description of the Ohio River Basin

This description is restricted to that part of the Ohio River, its borderlands, and minor tributaries in West Virginia. The river valley lies entirely within the Appalachian plateau physiographic province, but its terraced bottom lands are unlike the topography that generally characterizes the province. The most conspicuous features are the broad, level flood plains and steep terraces. The terraces furnish good sites for industrial and residential facilities and farms. The lower most terraces are inundated at times by flood waters particularly in the southern part of the river valley.

The Ohio River is formed by the confluence of the Allegheny and Monongahela Rivers at Pittsburgh, Pennsylvania, and flows southwesterly 981 miles to the Mississippi River. It forms 277 miles of the West Virginia boundary, the line being set at the original low water line on the Ohio side of the river. The West Virginia part of the Ohio River drains about 85 percent of the State.

An important part of the flow of the Ohio River in West Virginia is inflow from the upper regions of the Ohio River Basin in Pennsylvania, New York, and Ohio. The average inflow of the river is 40,000 cfs.

Huntington is the furthest downstream point at which the river is gauged in the State. During twenty-six years of record (1934-1960), the average discharge was 70,580 cfs. The maximum discharge at Huntington, 654,000 cfs, occurred January 28, 1937. Minimum daily dishcarges of 3,200 cfs has occurred at least five times during the years 1934, 1935, and 1937. The discharge equals or exceeds about 11,800 cfs for 90 percent of the time. The river is controlled by many navigation pools created by the lock and dam structures and constitutes an enormous volume of water. These pools are available for water supply and provide some minimum flood storage.

Numerous streams draining relatively small areas flow down the valley slopes of the Ohio River and contribute directly to the flow of the river. The comparison of the flow of three of the more sizable ones, Wheeling Creek, Middle Island Creek, and Twelvepole Creek, show that they are relatively flashy. Their general flow characteristics are somewhat alike owing to similar terrain, basin size, and precipitation.

The groundwater resources of the basin can be attributed to the unconsolidated alluvial deposits of the Ohio River and its tributaries. These groundwaters offer the best municipal and industrial sources of water in the State. It has been estimated that the total usage exceeds 60 million gallons a day and is only a small portion of the available possible production. Under favorable hydrologic and geologic conditions, a hydrolic gradient is established between the river and the pumping site and river water infiltrates the aquifers and moves toward the pumping well. A radial collector wells field at Parkersburg yields 5.5 million gallons of water per day.

III. West Virginia's Water Pollution Control Program

The legal responsibility for water pollution control is vested in the Division of Water Resources, Department of Natural Resources and is controlled under the provision of Chapter 20, Article 5A, Code of West Virginia. The Water Pollution Control law has undergone several amendments, the last being in 1969, and provides for an orderly program of water pollution abatement.

West Virginia operates under a water pollution permit system for all discharges. Municipal wastewater permits are issued upon satisfactory compliance with the West Virginia State Health Department criteria for sewage plants design.

Basically, the permit is for operating and maintaining a satisfactory operation.

Industrial permits are issued upon satisfactory assurance by the discharger that all industrial wastes are satisfactorily treated and will not violate the water quality standards established for the Ohio River or violate the provisions of the effluent standards established by the Ohio River Valley Water Sanitation Commission.

Federal Water Pollution Authority: Pursuant to the federal Water Quality Act of 1965, the State was given the opportunity to adopt, after public hearing, water quality criteria applicable to interstate waters or portions thereof within the State. The criteria along with a plan of implementation and enforcement was submitted to the Secretary on June 30, 1967.

Federal law required among other things that standards of quality could be established to protect the public health and welfare, enhance the water quality of the receiving stream. The State authority establishing such standards must take into account the uses and value of the waters for public water supply, propagation of fish and wildlife, recreation, agriculture, industry, and all other legitimate uses.

The State criteria along with the implementation and enforcement plan has received full approval by the Administrator of EPA in a letter dated July 30, 1971. It is our understanding that the federal approval of the Water Quality Standards Act by the federal government makes the provisions of the state act federally enforceable.

Other Agencies Involved in the Ohio River Basin: It should be recognized that there are other interested parties involved in the overall activity of water pollution abatement and water resources development in the Ohio River Basin. We make particular reference to the Southern Regional Environmental Conservation Council, which is developing a compact that would permit legal and binding agreements for states which should be considered in future undertakings; the Ohio River Basin Commission, a state-federal body that has specific assignments in planning and construction of projects within the Ohio Basin; the Ohio River Valley Water Sanitation Commission, a compact of state and federal control agencies directly involved in water pollution management; and the U. S. Army Corps of Engineers acting under planning authority and the Refuse Act.

Federal participation in these agencies has led to the establishment of various timetables, standards, criteria, and planning for the Ohio River Basin.

Surveillance and Enforcement: The Division of Water Resources did establish in 1967 five field offices throughout the State of West Virginia. It is the responsibility of the field offices to maintain general surveillance of water resources and pollution control facilities within various areas. Two field offices, one located in Parkersburg and the other in Charleston, provides surveillance for the mainstem of the Ohio River.

In the past, the Division has attempted to maintain monthly inspections of all dischargers to the Ohio River. This includes both municipal and industrial facilities. While the surveillance has been general in nature, we feel the constant pressure of individual contact lends to effective abatement and control measures. Basically two types of enforcement action can be caused to occur on individual polluters. The first is the administration provisions of Chapter 20 and its accompanying permit system with criminal provisions as well as injunctive provisions provided as remedy for violations, and secondly, criminal prosecution directly in the form of arrest and subsequent trial in Justice of the Peace court or the Circuit Court can follow.

Water Quality Network: The State in 1968 strengthened its existing water quality network by adding an additional thirteen stations on the Ohio River and minor tributaries. The northern most station is 0-274, with the southern most station being 0.8 located at Huntington, West Virginia. It was realized that the monitoring stations would most likely not pinpoint source discharges; however, general water quality conditions could be measured for possible future needs. We are including for the purpose of this report station O-274 for which this conference is concerned.

Water Quality Standards: As mentioned earlier in this report, water quality standards were adopted by the West Virginia Water Resources Board applicable to the Ohio River and minor tributaries. In the establishment of these standards, the Board took into consideration the current and future uses of the Ohio River and set forth the following regulations. (See Appendix 1.) Effective November 13, 1971, the Ohio River Valley Water Sanitation Commission did establish specific effluent criteria applicable to the mainstem of the Ohio River. (See Appendix 2.)

Municipal Program: As mentioned in earlier portions of this report, two agencies of the State of West Virginia have primary responsibility in the area of domestic wastes. The State Health Department reviews all permit applications, plans and so forth and issues a certificate based on design criteria. The Division of Water Resources, upon receipt of the certificate and a copy of the plans, reviews the effluent and plan of operation and if concurring with the State Health Department issues a water pollution control permit.

The Division of Water Resources is the agency administering Public Law 660 funds and coordinates the orderly process of municipal waste treatment facilities.

A major constraint of the West Virginia State law has been detailed to EPA in the past. This constraint does not allow the State of West Virginia to supplement the 30 percent basic grant of the federal government. In addition to this constraint, various federal agencies operating in the State of West Virginia, each with his particular program, causes unnecessary delays in the moving of a municipal waste project.

Industrial Waste Program: This program can be divided into three portions for discussion.

1. Coal Preparation: Since much of West Virginia is involved in mining activities and the associated production of marketable coal, a specific group is organized in the Division of Water Resources to deal with this particular problem. The waste control requirements are varied in nature from a simple lagoon containing impounded coal fines through complex thickening and solid removal. Also included within this section is that dealing with runoff from such activities as haulroads and gob piles.

2. A new provision of Chapter 20, Article 5A as amended in 1969, requires that a permit be secured to open, reopen, operate, or abandon any mine, quarry or preparation or disposal of any refuse or industrial wastes or other wastes from any mine, quarry, or preparation plant providing that the Department's permit be required only whenever the aforementioned activity causes, may cause, or might reasonably be expected to cause a discharge into or pollution of the waters of the State.

While the State has had limited jurisdiction on mine water discharges in the past, the language of the amended act clearly sets forth the State's intention in controlling mine water drainage. As a result of the amended act, a new section was created in the Division of Water Resources dealing with mine drainage and more particularly, acid mine drainage. While the size of the Division's staff is limited, a complex permit application is now being required at any of the aforementioned activities.

3. Industrial Wastes other than Coal: The Division has for many years had an ongoing program of industrial pollution abatement. While the provisions of Chapter 20 require that all industrial dischargers have a water pollution control permit, the Division due to limited staff has attempted to investigate and place on notice all known industrial wastewater discharges. Recent changes

in requirements of industrial discharges such as the mercury episode and the more recent Ohio River Valley Water Sanitation Commission's effluent standards have caused a rescheduling of compliance dates. West Virginia law provides that in certain cases a phase or time schedule abatement program is proper and may be carried out under the provisions of the Act.

IV. Implementation Schedule:

The Federal Water Pollution Control Act of 1965 required that the State provide along with other information a time schedule for the implementing of discharges to the Ohio River. For the purpose of this conference, we will list both municipal and industrial dischargers operating in West Virginia.

V. Conclusion:

The water quality of the Ohio River from Chester, West Virginia, mile point 43.4, to the West Virginia State line, mile point 40.0, can be classified as intermittently polluted, based on monitoring data from station 0-274 located at Chester, West Virginia.

Present use of the Ohio River in this 3.4 mile stretch is protected for water contact recreation, water supply public, water supply industrial, water supply agricultural, propagation of fish and aquatic life, water transport and cooling and treated waste transport and assimilation.

The only West Virginia municipality in this section of the Ohio River is the town of Chester with a primary sewage treatment plant that must upgrade to secondary by 1975. Chester also has a raw river water intake at mile point 42.0 with a daily withdraw of approximately 600,000 gallons.

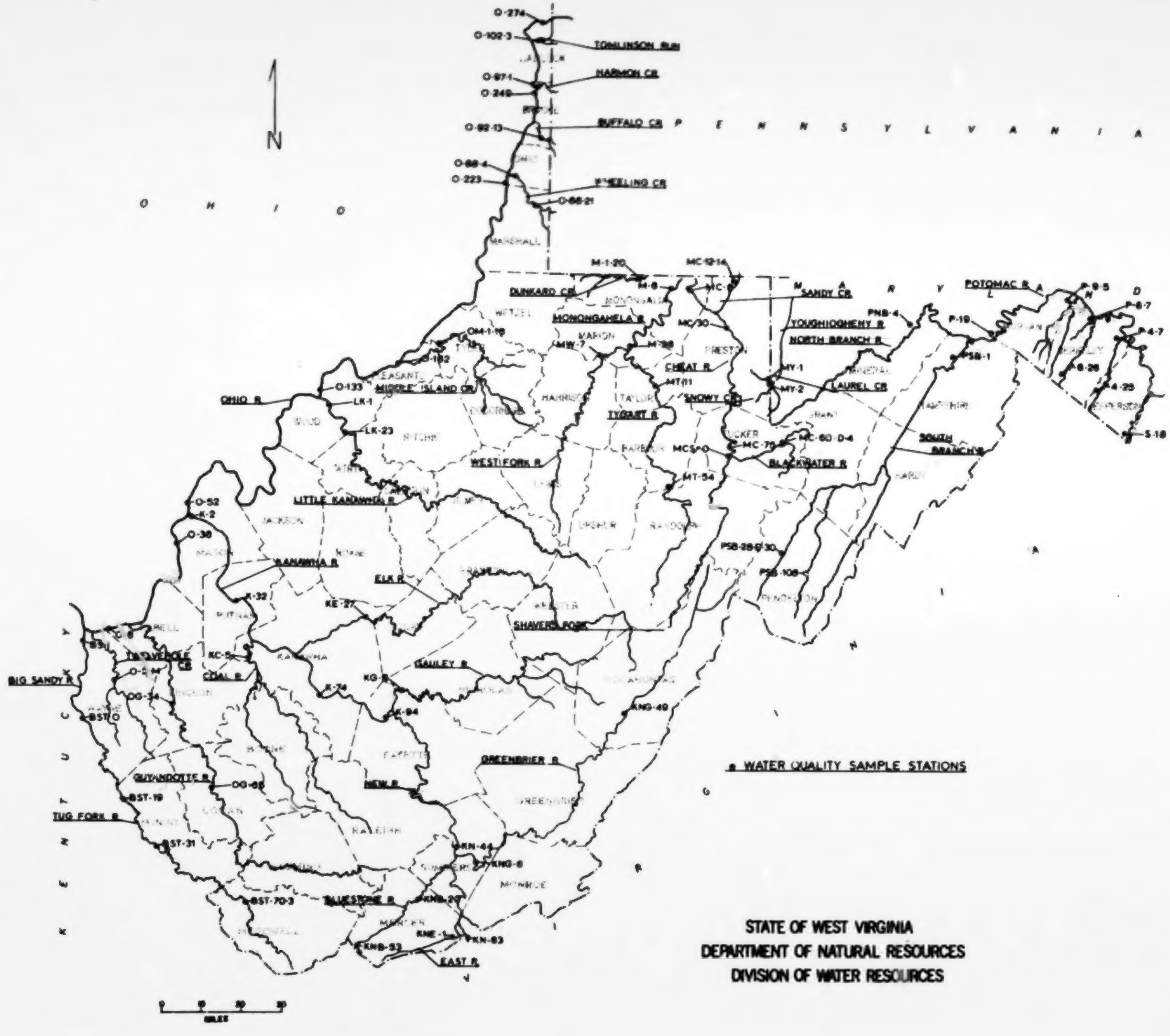
Industrial use is limited to discharge to city sewers. Several marinas and docks are located immediately below Cunningham Run at Chester.

The Division of Sanitary Engineering of the West Virginia State Department of Health, the State agency responsible for public water supply treatment, advised that no bacterial or taste and odor problems have been reported from the Chester Water Treatment facilities attributed to the raw water of the Ohio River.

In conclusion, we in West Virginia feel that, technically, criteria have been violated on occasion. However, the degree and parameters involved do not warrant this type of conference. Should the administration of EPA desire, more appropriate action, namely the 180-day notice, should be followed where applicable.

At last count, three state water pollution control agencies, three federal water pollution agencies, one interstate water pollution compact, one interstate planning compact, not to mention the plans completed by the U. S. Army Corps of Engineers on the Ohio and in Appalachia, are working on the Ohio River.

Our water pollution control agency has enjoyed a good working relationship with the Federal agencies, such as the Environmental Protection Agency, Corps of Engineers, Agriculture Department, and many others. These agencies, until recently, have been in a position to assist the State in its water pollution abatement efforts. Recent activities have been more and more of a parallel nature; however, a duplication of State efforts rather than providing assistance to the State.


N
O H I O
P E N N S Y L V A N I A
M A R Y L A N D
V I R G I N I A
K E N T U C K Y
O-274
O-102-3
TOMLINSON RUN
O-97-1
HARMON CR
O-249
BUFFALO CR
O-92-13
O-88-4
O-223
WHEELING CR
O-88-21
MARSHALL
M-1-20
MC-12-14
DUNKARD CR
M-8
MC-
MONONGALIA
SANDY CR
WETZEL
MONONGAHELA R
MC/30
YOUGHIOGHENY R
NORTH BRANCH R
PNB-4
POTOMAC R
P-9-5
P-6-7
P-4-7
P-19
PSB-1
S-26
4-25
S-18
BERKELEY
JEFFERSON
MINERAL
HAMPSHIRE
HARDY
GRANT
OM-1-16
TYLER
O-182
MARION
MW-7
M-36
PRESTON
CHEAT R
MT-11
MY-1
MY-2
LAUREL CR
SNOWY CR
O-133
PLEASANTS
MIDDLE ISLAND CR
OHIO R
LK-1
WOOD
LK-23
RITCHIE
DODDRIDGE
HARRISON
TAYLOR
TYGART R
TUCKER
MC-60-D-4
MCS-O
MC-75
BLACKWATER R
SOUTH BRANCH R
WEST FORK R
BARBOUR
MT-54
WIRT
CALHOUN
LITTLE KANAWHA R
GILMER
LEWIS
UPSHUR
RANDOLPH
O-52
K-2
JACKSON
O-38
MASON
ROANE
KANAWHA R
PSB-28 & 30
PSB-108
PENDLETON
K-32
PUTNAM
KE-27
ELK R
BRAXTON
WEBSTER
SHAVERS FORK
CABELL
TWELVEPOLE CR
KC-5
KANAWHA
BIG SANDY R
O-5
COAL R
GAULEY R
KG-8
K-74
NICHOLAS
POCAHONTAS
OG-34
LINCOLN
K-84
KNG-49
WAYNE
BST-O
BOONE
FAYETTE
GREENBRIER R
GUYANDOTTE R
OG-68
NEW R
BST-19
LOGAN
GREENBRIER
TUG FORK R
MINGO
RALEIGH
BST-31
KN-44
KNG-8
SUMMERS
WYOMING
MONROE
BST-70-3
BLUESTONE R
KNB-20
MERCER
McDOWELL
KNE-1
KN-83
KNB-53
EAST R
0 10 20 30
MILES
● WATER QUALITY SAMPLE STATIONS

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES

INVENTORY
WASTE DISCHARGES
OHIO RIVER
Mile Point 43.4 to Mile Point 40.0

September 1971

Name	Mile Point	Char. of Waste	Treatment	Status
Town of Chester	43.4	Domestic sewage	Yes	Primary with chlorination, needs expansion to secondary by 1975
Harker China Co.	43.4	Industrial Sanitary	None	Under notice
Taylor Smith & Taylor	43.4	Industrial Sanitary	None City System	Under notice with permit application pending
Celotex	43.4	Industrial	None	Under notice

SUMMARY OF WATER QUALITY DATA
Station O-274
January 1968 - March 1971

27 Samplings

Dissolved Oxygen (at least 5.0 mg/l for 16 hours, never below 3.0 mg/l)

Maximum	15.0 mg/l
Minimum	6.8 mg/l

Number of Times
Criteria Violated - None

pH (5.5 to 9.0)

Maximum	7.4
Minimum	6.5

Number of Times
Criteria Violated - None

Temperature (not to exceed 93°F May to November, 73°F December to April)

Maximum	84.1
Minimum	32.0

Number of Times
Criteria Violated - None

Threshold Odor (not to exceed 24 at 60°C)

Maximum	4
Minimum	1

Number of Times
Criteria Violated - None

Coliform Bacteria (2400/100 ml for contact recreation on any day)

Maximum	68,000
Minimum	< 100

Number of Times
Criteria Violated - 16

Arsenic (0.01 mg/l)

One sample	.001 mg/l

SUMMARY OF WATER QUALITY DATA
Station O-274
January 1968 - March 1971
(continued)

Barium (0.50 mg/l)

No samples run

Cadmium (0.01 mg/l)

Maximum	.008 mg/l
Minimum	.001 mg/l

Number of Times
Criteria Violated - None

Chromium (0.05 mg/l) 21 samples

Maximum	.014 mg/l
Minimum	.001 mg/l

Number of Times
Criteria Violated - None

Lead (0.05 mg/l)

Maximum	.0074 mg/l
Minimum	.0001 mg/l

Number of Times
Criteria Violated - None

Silver (0.05 mg/l)

Maximum	.012 mg/l
Minimum	<.001 mg/l

Number of Times
Criteria Violated - None

Nitrates (45 mg/l)

Maximum	6.0 mg/l
Minimum	0.0 mg/l

Number of Times
Criteria Violated - None

SUMMARY OF WATER QUALITY DATA
Station O-274
January 1968 - March 1971
(continued)

Phenol (.001 mg/l)

Maximum	.015 mg/l
Minimum	.001 mg/l

Number of Times
Criteria Violated - 17

Cyanide (.001 mg/l)

No samples run

Fluoride (1.0 mg/l)

Maximum	1.4 mg/l
Minimum	.01 mg/l

Number of Times
Criteria Violated - 2

Selenium (.01 mg/l)

No samples run

0-274

ANALYSES	1- 9-68	2- 6-68	3- 5-68	4- 2-68	5- 7-68	6-11-68	7-23-68	8-27-68
Time (Est)	1100	1055	1105	1105	0945	0925	1005	0940
Flow (cfs)								
Appearance	Frozen	Muddy	Green	Muddy	Green	Green	D Green	Green
Dissolved Oxygen	15.0	13.8	12.2	11.8	9.8	9.0	7.4	7.2
B. O. D.	2.4	0.9	1.8	1.1	2.3	2.5	4.9	2.2
Acidity Mineral								
Acidity Total	4	4	4	5	3	4	6	5
Alkalinity Total	17	13	30	21	23	21	30	7
Chlorides	16	10	23	15	21	13	27	26
Chromium (Hexavalent) *Total	-	-	-	-	-	-	<0.005	<0.005
Coliform (MF/100 ml)	6100	3000	<100	12000	5600	1100	2500	28000
Fecal Coliform (MF/100 ml)								
Fecal Strept. (MF/100 ml)	160	280	<10	210	<10	<10	<10	<10
Color (Units)	6	<5	<5	<5	<5	<5	<5	<5
Conductivity micro MHO	300	187	411	244	306	320	470	600
Fluorides	0.64	1.4	0.65	0.47	0.18	0.13	0.91	0.0
Hardness	106	70	142	92	138	112	144	212
pH (Units)	6.9	6.8	7.0	6.9	6.9	7.0	7.0	6.5
Iron (Total)	0.44	1.8	0.47	1.8	0.96	0.16	0.11	0.19
Lead (Dissolved)	<0.05	<0.05	<0.05	<0.05	0.05	<0.05	0.045	0.018
Manganese	0.60	0.33	0.71	0.38	0.82	0.44	0.17	1.3
Nitrates	2.3	2.8	1.9	2.7	2.3	2.7	3.5	2.3
Phenol (PPB)	12.9	11.	2.9	0.0	3.7	1.7	0.43	0.0
Potassium	1.6	1.4	2.4	1.2	2.4	1.7	3.2	3.5
Sodium	15	7.8	25	15	23	12	27	42
SOLIDS: Total	213	160	279	192	289	209	304	438
Suspended	20	37	10	39	10	13	20	4
Dissolved	193	123	269	153	279	196	284	434
Sulfates	92	59	120	74	132	102	132	272
Temperature °F	32.0	35.5	42.8	51.9	62.4	74.9	84.1	82.0
Threshold Odor No.	Qns	1.4	4	4	2	1.4	3	-
Turbidity (Units)	5	15	5	26	10	5	6	3
Arsenic								
% Saturation of D. O.	103	100	95	70	100	105	95	90
Copper								
Mercury								
Silver	-	-	-	-	-	<0.02	<0.012	<0.005
Zinc	-	-	-	-	0.21	-	-	-
Cadmium	-	-	-	-	<0.01	<0.01	0.0005	0.002

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0-274

ANALYSES	10- 1-68	11-19-68	1- 7-69	1-21-69	2-25-69	4- 8-69	5-20-69	7-29-69
Time (Est)	0910	1010		1000	1030	1100	1045	1030
Flow (cfs)								
Appearance	Dark Green	Brownish Green	Frozen	Muddy	B Green	Brown	Green	Muddy
Dissolved Oxygen	10.5	11.2		14.3	13.1	11.9	9.9	6.8
B. O. D.	5.9	2.0		1.8	1.9	3.4	2.8	1.8
Acidity Mineral								
Acidity Total	5	5		7	4	7	4	6
Alkalinity Total	22	26		27	25	16	21	25
Chlorides	32	20		28	23	13	14	24
Chromium (Hexavalent) *Total	0.002	0.003		0.003	0.004	0.014	0.004	0.008
Coliform (MF/100 ml)	14700	4000		5000	1100	8300	39000	13000
Fecal Coliform (MF/100 ml)	-	1000		500	100	1000	<100	-
Fecal Strept. (MF/100 ml)	<10	110		150	<10	460	10	10
Color (Units)	<5	<5		<5	<5	<5	<5	<5
Conductivity micro MHO	500	310		280	300	185	290	460
Fluorides	0.28	0.8		0.26	0.37	0.15	1.14	0.28
Hardness	174	116		98	104	64	98	134
pH (Units)	7.0	7.2		7.0	7.1	6.7	7.2	6.8
Iron (Total)	0.20	1.1		1.73	1.05	1.2	0.70	0.38
Lead (Dissolved)	0.015	0.075		0.06	0.02	<0.05	0.07	<0.05
Manganese	0.97	0.97		1.12	0.64	0.23	0.50	0.54
Nitrates	4.1	1.7		2.6	3.7	3.6	2.3	1.9
Phenol (PPB)	0.1	2.0		7	7	1	<1	<1
Potassium	3.8	1.9		2.9	1.9	1.4	1.8	2.6
Sodium	39	17		38	33	7.5	12	27
SOLIDS: Total	370	243		213	208	495	186	324
Suspended	8	39		21	2	368	24	62
Dissolved	362	204		192	206	127	162	262
Sulfates	182	95		75	62	56	80	116
Temperature °F	63.3	50.1		38.6	43.9	52.5	67.5	81.0
Threshold Odor No.	3	3		1.4	2	1	1	1
Turbidity (Units)	5	39		32	10	290	12	55
Arsenic								
% Saturation of D. O.	109	100		108	107	108	107	85
Copper								
Mercury								
Silver	<0.012	<0.005		<0.005	<0.005	<0.005	<0.005	<5
Zinc								
Cadmium	0.001	<0.001		0.0052	<0.001	0.0015	<0.0012	1.0

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0-274

ANALYSES	8-19-69	10- 7-69	11-18-69	1-19-70	4- 6-70	5-18-70	7- 7-70	8-17-70
Time (Est)	1625	1300	1115	1420	1045	1115	1100	1040
Flow (cfs)								
Appearance	Green	Clear	-	-	-	-	-	-
Dissolved Oxygen	8.3	8.0	10.2	14.9	11.6	8.2	8.9	8.2
B. O. D.	1.5	4.0	2.0	3.4	2.0	4.0	>8.8	3.8
Acidity Mineral								
Acidity Total	5	4	4	4	6	4	8	9
Alkalinity Total	13	31	19	27	11	21	17	30
Chlorides	25	31	22	29	11	16	27	24
Chromium (Hexavalent) *Total	0.01	0.004	0.003	0.004	<0.001	0.004	0.001	0.001
Coliform (MF/100 ml)	36000	1000	6800	1400	3700	9100	100	300
Fecal Coliform (MF/100 ml)	-	-	-	<100	100	300	<100	<100
Fecal Strept. (MF/100 ml)	10	<10	<10	130	260	10	<10	10
Color (Units)	<5	<5	<5	<5	<5	<5	<5	<5
Conductivity micro MHO	500	420	450	340	200	360	470	500
Fluorides	0.23	0.19	0.22	0.07	Qns	0.32	0.47	-
Hardness	162	154	148	74	44	126	154	156
pH (Units)	6.6	7.4	6.8	7.1	6.6	7.1	6.5	6.8
Iron (Total)	0.06	0.46	0.43	0.97	0.52	0.19	0.39	0.10
Lead (Dissolved)	<0.05	<0.05	<0.05	-	0.09	0.02	0.02	<0.02
Manganese	0.59	0.60	1.2	0.61	0.52	0.27	0.83	0.10
Nitrates	3.1	6.0	3.3	3.5	4.1	2.3	2.4	4.7
Phenol (PPB)	1	1	3	9	4	5	<1	3
Potassium	2.9	4.3	3.4	2.4	1.7	1.8	2.9	3.4
Sodium	20	28	30	44	6.6	16	28	33
SOLIDS: Total	314	331	329	221	229	268	326	333
Suspended	23	9	15	15	90	41	2	4
Dissolved	291	322	314	206	139	227	324	329
Sulfates	67	147	151	86	75	118	150	148
Temperature °F	81.8	70.0	52.0	33.0	44.0	66.0	79.0	80.0
Threshold Odor No.	1	1	1	1.4	2	1.4	1.4	1.4
Turbidity (Units)	10	12	7	10	125	45	12	11
Arsenic								
% Saturation of D. O.	104	89	92	-	-	-	-	-
Copper								
Mercury								
Silver	<5	<5	<2	<1	<10	<4	<4	<4
Zinc	-	-	-	-	0.18	-	-	-
Cadmium	8	<2	2	<1	<1	<2	<2	<2

365

0-274

ANALYSES	9-28-70	11-16-70	1- 4-71	3-30-71
Time (Est)	0900	1145	1150	1120
Flow (cfs)				
Appearance				
Dissolved Oxygen	8.0	11.4	14.1	11.5
B. O. D.	2.4	>8.5	>9.9	1.3
Acidity Mineral				
Acidity Total	4	6	7	2
Alkalinity Total	32	25	18	16
Chlorides	19	15	19	19
Chromium (Hexavalent) *Total	0.005	0.010	0.005	0.003
Coliform (MF/100 ml)	16000	45000	400	800
Fecal Coliform (MF/100 ml)	400	1600	100	<100
Fecal Strept. (MF/100 ml)	40	480	130	10
Color (Units)	<5	<5	8	<5
Conductivity micro MHO	350	285	300	290
Fluorides	0.26	0.13	0.14	0.14
Hardness	120	102	100	104
pH (Units)	7.3	6.8	6.7	6.6
Iron (Total)	0.29	1.2	1.1	2.0
Lead (Dissolved)	0.05	0.02	74	42
Manganese	0.16	0.45	0.51	0.43
Nitrates	0.0	2.7	1.8	2.6
Phenol (PPB)	<1	2	12	18
Potassium	2.9	2.3	1.8	1.4
Sodium	21	18	16	23
SOLIDS: Total	251	227	224	218
Suspended	5	41	15	20
Dissolved	246	186	209	198
Sulfates	97	83	95	79
Temperature ^{o}F	71.0	51.0	38.0	-
Threshold Odor No.	2	1.4	1	2
Turbidity (Units)	12	48	30	37
Arsenic	-	-	-	19
% Saturation of D. O.				
Copper	-	14	-	-
Mercury	<1	<0.4	<0.4	<0.2
Silver	<2	<4	<4	<2
Zinc	-	220	-	-
Cadmium	2	<2	<2	<2

STATE OF WEST VIRGINIA
OFFICE OF THE GOVERNOR
CHARLESTON 25305

ARCH A. MOORE, JR.
GOVERNOR

8-17-71

Mr. William D. Ruckelshaus
Administrator
Environmental Protection Agency
Washington, D. C. 20460

Dear Mr. Ruckelshaus:

This is in regard to your letters requesting Enforcement Conferences on the Ohio River from Pittsburgh to Chester, West Virginia; the Ohio River from Toronto, Ohio to McMechen, West Virginia; and the Kanawha River in the Charleston area.

I do not believe such Enforcement Conferences will materially aid our pollution abatement program.

Pursuant to the Water Quality Act of 1965, this state held public hearings on water quality and established criteria on interstate and intrastate waters. As a part of the Act, the State was required to establish an implementation plan that would bring discharges into compliance. In general, industries discharging wastes were requested to establish treatment levels equivalent to that required of municipalities on the rivers in question.

All municipalities without treatment were required to establish secondary sewage treatment by 1975, or before in some cases. All municipalities with primary treatment were given until 1975 to accomplish secondary treatment.

The only exception to the above was acid drainage coming from abandoned coal mines.

Some slippage appears to be imminent in the case of municipalities, as the State is not yet in a position to provide matching funds in the construction grants program, although we are attempting to proceed in spite of constitutional and budgetary restrictions. The confusing multiplicity of other

Federal programs such as Farmers Home Administration, Economic Development Administration, and Housing and Urban Development, also has caused some delay in municipal funding. There were some delays in the industrial program; however, the State now has a firm detailed program of abatement with timetables and compliance dates.

In the case of the Ohio River main stem, the signatory States of the Ohio River Valley Water Sanitation Commission, which includes Ohio, Pennsylvania, and West Virginia, are currently developing additional programs relative to both industry and municipalities in compliance with the recent ORSANCO effluent standards. The Environmental Protection Agency has representation on the Commission and was a party in the development and adoption of said standards. Further, other remedies exist under the Federal Act -- namely the 180 Day Notice and the 1899 Refuse Act of the Corps of Engineers to abate water pollution -- and these should be followed in preference to an Enforcement Conference.

In regard to the Kanawha River, the Environmental Protection Agency has been brought into the picture from the very beginning and has participated in all discussion processes including the proposed Blue Ridge Power Project. In December, 1970, our agency invited the EPA to Charleston and presented Phase III of the Kanawha River Clean-up Program. I must point out that the Kanawha Program has received National attention in the manner in which it is being conducted, and we were not aware that its effectiveness was being questioned by your agency.

In 1963, an Enforcement Conference was convened on the Monongahela River. I am advised that a second meeting on this Conference has now been called for later this month. The lack of results in the eight years following that initial Enforcement Conference makes me skeptical as to the benefits that can be accomplished by pursuing such a course.

In the recent session of our State Legislature, I was able to provide a 90 percent increase in funding for the Water Resources Division of our Department of Natural

Resources. I feel that our pollution abatement program is well planned and effective. The additional Water Resources personnel, made possible through increased funding, will improve our program to a greater extent than was ever possible in the past.

In view of the foregoing, I feel I must decline your invitation to join in the initiation of the Enforcement Conferences.

Sincerely yours,

Arch A. Moore, Jr.
Governor

AAMJr:ms

bcc: Mr. Ira S. Latimer, Jr., Director
Department of Natural Resources

ADMINISTRATIVE REGULATIONS

of

THE STATE OF WEST VIRGINIA

for

WATER QUALITY CRITERIA

on

INTER AND INTRA STATE STREAMS

1970

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WATER RESOURCES
CHARLESTON, WEST VIRGINIA
25305

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WEST VIRGINIA ADMINISTRATIVE REGULATIONS
STATE WATER RESOURCES BOARD

REQUIREMENTS GOVERNING THE DISCHARGE OF SEWAGE, INDUSTRIAL WASTES AND OTHER WASTES INTO THE WATERS OF THE STATE

Chapter 20, Articles 5 and 5A,
Code of West Virginia

John C. Ailes
Chairman
State Water Resources Board

Effective: August 18, 1970

WEST VIRGINIA ADMINISTRATIVE REGULATIONS
STATE WATER RESOURCES BOARD

Chapter 20–5 and 20–5A
Series I
(1965)

Subject: REQUIREMENTS GOVERNING THE DISCHARGE OR DEPOSIT OF SEWAGE, INDUSTRIAL WASTES AND OTHER WASTES INTO THE WATERS OF THE STATE.

The State Water Resources Board and the Chief of the Division of Water Resources in the State Department of Natural Resources, under Chapter 20, Article 5A, Code of West Virginia, have the power and authority to determine whether any person, firm, municipality or corporation is polluting any of the waters of the State and to prevent, control, eliminate or reduce such pollution. In making such determination, due consideration shall be given, in accordance with the public policy of the State of West Virginia, to the use of available and reasonably practicable methods to control and reduce pollution. In so doing, recognition shall be given to the fact that each stream in the State may represent a separate problem and further, that the use of a watercourse for dilution of wastes is proper so long as the net results to not cause or contribute to conditions hereinafter not allowed.

Section 1. GENERAL

1.01 Scope — These regulations establish requirements governing the discharge or deposit of sewage, industrial wastes and other wastes into the waters of the State.

1.02 Authority — These regulations are issued under authority of West Virginia Code, (Section 3, Article 5A, Chapter 20).

1.03 **Effective Date** — These regulations are promulgated on April 27, 1970, and become effective thirty days after filing in the Secretary of State's Office.

1.04 **Filing Date** — These regulations were filed in the Office of the Secretary of State of July 20, 1970.

1.05 **Certification** — These regulations are certified authentic by the Chairman of the State Water Resources Board by certification number 3.

Section 2. DEFINITIONS

2.01 "Person", "waters", "pollution", "sewage", "industrial wastes", and "other wastes" shall have the same meanings as defined by the Code of West Virginia, Chapter 20, Article 5A, Section 2.

Section 3. GENERAL CONDITIONS NOT ALLOWABLE IN STATE WATERS

3.01 Certain characteristics of sewage, industrial wastes or other wastes or factors which render waters directly or indirectly detrimental to the public health or unreasonably and adversely affect such waters for present or future reasonable uses, are objectionable in all waters of the State. Therefore, the State Water Resources Board does hereby proclaim that the following general conditions are not to be allowed in any of the waters of the State.

No sewage, industrial wastes or other wastes entering any of the waters of the State shall cause therein or materially to contribute to any of the following conditions thereof, which shall be the minimum conditions allowable:

(a) Distinctly visible floating or settleable solids, solids, scum, foam or oily sleeks of unreasonable kind or quantity;
(b) Objectionable deposits on bottom or sludge banks;
(c) Objectionable odors in the vicinity of the waters;
(d) Objectionable taste and/or odor in municipal water supplies;
(e) Concentrations of materials poisonous to man, animal or fish life;
(f) Dissolved oxygen concentration to be less than 3.0 parts per million at the point of maximum oxygen depletion;
(g) Objectionable color;
(h) Objectionable bacterial concentrations;
(i) Requiring an unreasonable degree of treatment for the production of potable water by modern water treatment processes as commonly employed.

3.02 Waters whose existing quality is better than the established standards will not be lowered in quality unless and until it has been affirmatively demonstrated to the Chief of the Division of Water Resources, Department of Natural Resources, that such change is justifiable as a result of necessary development and will not interfere with or become injurious to any present or future assigned uses of such waters. In special cases where the facts warrant, more stringent standards or exceptions thereto may be established. In implementing the policy of this paragraph as it relates to interstate streams, the Secretary of The Interior will be kept advised and provided with such information as he will need from time to time to protect the interests of the United States and the authority of the Secretary in maintaining high quality of interstate waters.

Section 4. REPORTING SPILLS AND ACCIDENTAL DISCHARGES

4.01 It is recognized that spills and accidental discharges of sewage, industrial wastes and other wastes are contrary to the language and intent of the State Water Pollution Control Law and these spills and accidental discharges are likely to occur from time to time, notwithstanding efforts to prevent them.

It is further recognized that such spills and discharges are likely to have such a deleterious effect upon the quality of the waters of the State as to cause serious damage or to impose unwarranted burdens upon the downstream water users.

For these reasons the State has had a voluntary spill alert system in operation since 1958 and the State Water Resources Board hereby declares it mandatory that, in order to minimize the adverse effect which the above-described occurrences may have upon users of water of the State, the following procedures shall be followed:

(a) Each and every municipality, corporation, person or other entity which or who may cause or be responsible for any spill or accidental discharge into the waters of the State, of sewage, industrial waste or other substance of such character and in such quantity as to be unsightly or deleterious to the quality of such waters shall give prompt notification thereof by telephone to the Chief of the Division of Water Resources, State Department of Natural Resources, or an employee thereof;

(b) Such notification shall set forth the time and place of such spill or discharge, the type or types and quantity or quantities of the material or materials therein, action or actions taken to stop such spill or discharge and to minimize the polluting effect thereof, the measure or measures taken or to be taken in order to prevent a recurrence of any such spill or discharge and such additonal information as may be requested by the Division of Water Resources;

(c) It shall be the responsibility of each industrial establishment or other entity discharging directly to a stream to have available insofar as practicable and reasonable the following information pertaining to those substances that are employed or handled in its operation in sufficiently large amounts as to constitute a hazard in case of an accidental spill and discharge into a public stream:

(1) Potential toxicity in water to man, animals and aquatic life;

(2) Details on analytical procedures for the quantitative estimation of such substances in water;

(3) Suggestions on safeguards or other precautionary measures to nullify the toxic effects of a substance once it has gotten into a stream;

(d) A written verification of such report shall be submitted upon request of the Division of Water Resources.

4.02 Parts 4.01 (a) and (b) shall also apply to spills to the waters of the State resulting from accidents to common carriers by highway, rail and water transporting chemicals or other substances which are likely to have a deleterious effect upon the receiving waters.

4.03 Failure to furnish such information as required by Section 9, Article 5A, Chapter 20, Code of West Virginia shall be punishable under Section 19, Article 5A, Chapter 20, Code of West Virginia.

Section 5. ACID MINE DRAINAGE CONTROL MEASURES

5.01 Certain acid mine drainage control measures were adopted by the Ohio River Valley Water Sanitation Commission and promulgated as Resolution No. 5-60, as amended January 10, 1963. The State of West Virginia is a member of the Ohio River Valley Water Sanitation Compact and as such has agreed to carry out the control measures so established. Waters of the State of West Virginia are being polluted by acid discharges from coal mining and related operations, hereinafter referred to as "acid mine drainage", contrary to the language and intent of the State Water Pollution Control Law.

5.02 It has been demonstrated that the conscientious application of certain principles and practices will, under certain conditions, alleviate the pollution from acid mine drainage. Therefore, in furtherance of the policy and procedures of the State Water Resources Board, the following measures are hereby adopted by the Water Resources Board for the control of acid mine drainage pollution in the State of West Virginia:

(a) 1. Surface waters and ground waters shall be diverted where practicable to prevent the entry or reduce the flow of waters into and through workings.

2. Water that does gain entry to the workings shall be handled in a manner which will minimize the formation and discharge of acid mine drainage to streams.

(b) Refuse from the mining and processing of coal shall be handled and disposed of in a manner which will minimize discharge of acid mine drainage therefrom to streams. Where acid-producing materials are encountered in the overburden in stripping operations, these materials shall be handled so as to prevent or minimize the production of acid mine drainage, taking into consideration the need for stream pollution prevention and all economic factors involved.

(c) Discharge of acid mine drainage to streams shall be regulated insofar as practicable to equalize the flow of daily accumulations throughout a 24-hour period.

(d) Upon discontinuance of operations of any mine all practicable mine-closing measures, consistent with safety requirements shall be employed to minimize the formation and discharge of acid mine drainage.

(e) Under appropriate circumstances, consideration shall be given to the treatment of acid mine drainage by chemical or other means in order to mitigate its pollutional properties.

WEST VIRGINIA ADMINISTRATIVE REGULATIONS
STATE WATER RESOURCES BOARD

REQUIREMENTS GOVERNING THE DISCHARGE OF SEWAGE, INDUSTRIAL WASTES AND OTHER WASTES INTO THE WATERS OF THE STATE AND ESTABLISHING GENERAL WATER USE CATEGORIES AND WATER QUALITY STANDARDS FOR THE WATERS OF THE STATE

Chapter 20, Articles 5 and 5A,
Code of West Virginia

John C. Ailes
Chairman
State Water Resources Board

WEST VIRGINIA ADMINISTRATIVE REGULATIONS
STATE WATER RESOURCES BOARD

Chapter 20–5 & 20–5A
Series II
(1967)

Subject: REQUIREMENTS GOVERNING THE DISCHARGE OR DEPOSIT OF SEWAGE, INDUSTRIAL WASTES AND OTHER WASTES INTO THE WATERS OF THE STATE.

The State Water Resources Board and the Chief of the Division of Water Resources in the State Department of Natural Resources, under Chapter 20, Article 5A, Code of West Virginia, have the power and authority to determine whether any person, firm, municipality or corporation is polluting the waters of the State and to prevent, control, eliminate or reduce such pollution. In making such determination, due consideration shall be given, in accordance with the public policy of the State of West Virginia, to the use of available and reasonably practicable methods to control and reduce pollution. In so doing, recognition shall be given to the fact that each stream in the State may present a separate problem and further that the use of a watercourse for dilution of wastes is proper so long as the net results do not cause or contribute to conditions hereinafter not allowed.

Section 6. GENERAL AND WATER USE CATEGORIES

6.01 Scope. — These regulations establish requirements governing the discharge or deposit of sewage, industrial wastes and other wastes into the waters of the State and establish general water use categories and water quality standards for the waters of the State.

6.02 Authority. — These regulations are issued under authority of the West Virginia Code (Section 3, Article 5A, Chapter 20).

6.03 Effective Date. — These regulations are promulgated on April 27, 1970, and become effective thirty days after filing in the Secretary of State's Office.

6.04 Filing Date. — These regulations were filed in the Office of the Secretary of State on July 20, 1970.

6.05 Certification. — These regulations are certified authentic by the Chairman of the State Water Resources Board by certification number 3.

6.06 Category A. Water Contact Recreation:
This category includes swimming, fishing, water skiing, and certain types of pleasure boating such as sailing in very small craft and small outboard motor boats.

6.07 Category B1. Water Supply, Public:
This category is used to describe all waters used for public supplies. It does not include water for cooling.

6.08 Category B2. Water Supply, Industrial:
This category is used to describe all waters used for industrial supplies. It does not include water for cooling.

6.09 Category B3. Water Supply, Agricultural:
This category includes all water used for agriculture, includes irrigation, as well as livestock watering. It is understood that these waters would also be suitable for wildlife watering.

6.10 Category C. Propagation of Fish and Other Aquatic Life:
This category is self explanatory and does recognize the importance of other aquatic life in addition to fish.

6.11 Category D. Water Transport, Cooling and Power:
This category includes commercial and pleasure vessel activity except those small craft included in Category A. Cooling water is that water used for industrial cooling. Power production in this definition is hydro power.

6.12 Category E. Treated Wastes Transport and Assimilation:
This category includes water of such quality as to assure safe passage of fish.

Section 7. WATER USES AND WATER QUALITY CRITERIA

7.01 The following criteria are established for the purpose of maintaining water quality in all streams and their tributaries in West Virginia, draining to the North Branch of the Potomac River, including the South Branch of the Potomac River. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E, (See Section 6).

(b) Water Quality Criteria for Present Uses.

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Not less than 6.0 nor more than 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.

3. **Temperature:** Not to exceed 87 °F at any time during months of May through November and not to exceed 73 °F at any time during months of December through April.
4. **Threshold Odor:** Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. **Toxic Substances:** Not to exceed 1/10 of the 96-hour median tolerance limit.
6. **Bacteria:** The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. **Radioactivity:** Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. **Heavy Metals:** Not to exceed the following:

Constituent	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. **Other Compounds:** Not to exceed the following:

Constituent	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E.

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 8. WATER USES AND WATER QUALITY CRITERIA

8.01 The following criteria are established for the purpose of maintaining water quality in all streams and their tributaries in West Virginia draining to the Potomac River from its headwaters at the junction of the north and south branches of the Potomac to the state line at Harpers Ferry, West Virginia, including the Shenandoah River. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E, (See Section 6).

(b) Water Quality Criteria for Present Users.

1. **Dissolved Oxygen:** Not less than 5 mg/1 at any time.
2. **pH:** Not less than 6.0 nor more than 8.5, except streams carrying significant quanitites of acid mine drainage shall have a pH of not less than 5.5.
3. **Temperature:** Not to exceed 87 °F at any time during the months of May through November and not to exceed 73 °F at any time during December through April.
4. **Threshold Odor:** Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. **Toxic Substances:** Not to exceed 1/10 of the 96-hour median tolerance limit.
6. **Bacteria:** The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month; nor exceed 2,400 per 100 ml on any day.
7. **Radioactivity:** Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. **Heavy Metals:** Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. **Other Compounds:**

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E, (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 9. WATER USES AND WATER QUALITY CRITERIA

9.01 **Zone One:** To include the Kanawha River and all of its tributaries from Mile Point 72 near Diamond, West Virginia to the junction of Gauley River and New River at Gauley Bridge. For purposes of maintaining water quality, the criteria proposed for Zone One will prevail also in all tributaries in Zone Two with the exception of Davis Creek and Simons Creek.

(a) Present Uses: A, B1, B3, C, D, (See Section 6).

(b) Water Quality Criteria for Present Uses: Based on a minimum flow of 2490 cfs at Kanawha Falls gauge, main stem Kanawha River only. On the tributaries of the Kanawha River, Zone One, to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87 °F at any time during the months of May through November and not to exceed 73 °F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B3, C, D.

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

9.02 **Zone Two:** To include the Kanawha River and all tributaries not included in Zone One from Mile Point 0 to Mile Point 72.

(a) Present Uses: B1, B2, D, E.

(b) Water Quality Criteria for Present Uses: Based on a minimum flow of 2,890 cfs, at Charleston gauge.

1. Dissolved Oxygen: Not less than 3 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 93 °F in any case or 10 °F above ambient stream temperature, whichever is limiting.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 64 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 48-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 5,000 per 100 ml as a monthly average nor exceed this number in more than 20 percent of the samples examined during the month, nor exceed 20,000 per 100 ml in more than 5 percent of the samples.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved

strontium-90 exceed 10 pCi/1 nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following, regardless of flow:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chloride	200
Sulfate	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, C (limited), D, E.

(d) Water Quality Criteria for Future Uses:

1. Dissolved Oxygen: Not less than 4 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 93°F in any case or 10°F above ambient stream temperature, whichever is limiting.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 24 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1000 per 100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 10. WATER USES AND WATER QUALITY CRITERIA

10.1 The following criteria are established for all the tributaries to the Bluestone River rising in West Virginia and flowing into Virginia for the purpose of maintaining water quality. The following stream standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day flow with a 10-year return frequency.

(a) Present Uses: B2, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 3 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81°F at any time during the months of May through November and not exceed 73°F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 5,000 per 100 ml as a monthly average nor exceed this number in more than 20 percent of the samples examined during the month, nor exceed 20,000 per 100 ml in more than 5 percent of the samples.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi /1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Cyanide	0.025
Fluoride	1.0
Phenol	0.001
Selenium	0.01

(c) Future Uses: A, B1, B2, C, E, (See Section 6).

(d) Water Quality Criteria for Future Uses:

1. Dissolved Oxygen: Not less than 4 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81 °F at any time during the months of May through November and not to exceed 73 °F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluroide	1.0
Selenium	0.01

(e) In special cases where the facts warrant, more stringent standrads, or exceptions to the above standards, may be established in the individual case.

10.2 The following criteria are established for the Bluestone River and all its tributaries from the Virginia-West Virginia State line to the head of the backwater of the Bluestone Reservoir for the purpose of maintaining water quality. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B2, B3, C, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 4 mg/1 at any time.
2. pH; Values normal for the waters in area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81 °F at any time during the months of May through November and not to exceed 73 °F at any time during November through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1 nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E, (see Section 6).

(d) Water Quality Criteria: Same as Present Uses except dissolved oxygen.

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

10.3 The following criteria are established for the East River and all its tributaries from its source to the West Virginia-Virginia State line for the purpose of maintaining water quality. The following stream standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B2, B3, C, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH; Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81°F at any time during the months of May through November and not to exceed 73°F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, E, (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

10.4 The following criteria are established for the New River and all its tributaries, except the Bluestone and East Rivers, from the West Virginia-Virginia State line to the head of the backwater of the Bluestone Reservoir for the purpose of maintaining water quality. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B2, B3, C, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1

at any time.

2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81 °F at any time during the months of May through November and not to exceed 73 °F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrate	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, E (See Section 6).

(d) Water Quality Criteria for Future Uses:

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

10.5 The following criteria are established for the New River and all its tributaries from the tailwaters of the Bluestone Reservoir to the confluence with the Gauley River, at which point the New River and the Gauley River from the Kanawha River. These criteria are established for the purpose of maintaining water quality. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81 °F at any time during the months of May through November and not to exceed 73 °F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pC/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfate	200
Phenol	0.001

Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria for Future Uses:
Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

10.6 The following water quality criteria are established for the Bluestone Reservoir for the purpose of maintaining water quality.

(a) Present Uses: A, B1, C, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81°F at any time during the months of May through November and not to exceed 73°F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfate	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, C, D, E (See Section 6).

(d) Water Quality Criteria for Future Uses:
Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

10.7 The following criteria are established for the purpose of maintaining water quality for the Gauley River and all its tributaries from its source to the confluence with the New River, which junction forms the Kanawha River. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency. The Gauley River and its tributaries lie entirely within West Virginia.

(a) Present Uses: A, B1, B2, B3, C, E, (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 81°F at any time during the months of May through November and not to exceed 73°F at any time during December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved

strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A,B1, B2, B3, C, E (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 11. WATER USES AND WATER QUALITY CRITERIA.

11.01 The following criteria are established for the purpose of maintaining water quality in the Big Sandy River and all its tributaries arising in West Virginia from its mouth at Kenova, West Virginia, to the confluence of the Levisa Fork and Tug Fork. The following stream standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87 °F at any time during the months of May through November and not to exceed 73 °F at any time during the months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1), nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

11.02 The following criteria are established for the purpose of maintaining water quality in the Tug Fork and all its tributaries arising in West Virginia, from its confluence with Levisa Fork to its headwaters and all tributary streams to the Tug Fork crossing the State boundary from Virginia into West Virginia. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum 7-consectuive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See

Section 6).

(b) **Water Quality Criteria for Present Uses:**

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

11.03 The following criteria are established for the purpose of maintaining water quality in the Guyandotte River and all its tributaries from its mouth at Hungtington, West Virginia, to its headwaters. (The Guyandotte River Basin is wholly located within West Virginia). The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) **Water Quality Criteria for Present Uses:**

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams having significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during the months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1), nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/l
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 12. WATER USES AND WATER QUALITY CRITERIA.

12.01 The following criteria are established for the purpose of maintaining water quality in the main stem of the Ohio River from the Ohio-Pennsylvania-West Virginia State line to the Ohio-Kentucky-West Virginia State line: The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequncy.

(a) Present Uses: A, B1, B2, B3, C, D, E, (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5.0 mg/l during at least 16 hours of any 24-hour period, nor less than 3.0 mg/l at any time.
2. pH: No values below 5.5 nor above 9.0 and daily average (or median) values preferably between 6.5 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 93°F at any time during the months of May through November, and not to exceed 73°F at any time during the months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 24 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when jsutified on the basis of available evidence and approved by the appropriate agency.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value; nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium-90 exceed 10 pCi/l, nor shall activity from disolved alpha emitters exceed 3 pCi/l.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/l
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constiutents	Concentration mg/l
Nitrates	45
Phenol	0.001
Cyanide	0.001
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria for Future Uses:

1. Dissolved Oxygen: Not less than 5 mg/l at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per

100 ml on any day.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

12.02 The following criteria are established for the purpose of maintaining water quality in all the tributaries of the Ohio River in West Virginia, excluding the Big Sandy, Guyandotte and Kanawha Rivers. The following stream standards are to apply at all times when the flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87 °F at any time during the months of May through November and not to exceed 73 °F at any time during months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60 °C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria for Future Uses: Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 13. WATER USES AND WATER QUALITY CRITERIA.

13.01 The following criteria are established for the purpose of maintaining water quality in the Monongahela River and all its tributaries from the West Virginia-Pennsylvania State line to the confluence of the Tygart Valley and West Ford Rivers. Rivers.

(a) Present Uses: A, B1, B2 (See Section 6).

(b) Water Quality Criteria for Present Uses:
Based on a minimum flow of 345 cfs at Lock and Dam # 8, main stem Monongahela River. On the tributaries of the Monongahela River the following stream quality standards are to apply at all times when flows are equal to or greater than the minimum

mean 7-consecutive-day drought flow with a 10-year return frequency.

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria:

Same as Present Uses as modified below.

1. Bacteria: The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

13.02 The following criteria are established for the purpose of maintianing water quality in the West Fork River and all its tributaries from its mouth to its headwaters. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during the months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1,000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per 100 100ml on any day.
7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50

Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

13.03 The following criteria are established for the purpose of maintaining water quality in the Tygart Valley River and all its tributaries from its mouth to its headwaters. The following stream standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH; Values normal for the waters in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during months of December through April.
4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.
5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.
6. Bacteria: The Coliform group is not to exceed 1000/100 ml as a monthly average value; nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 2,400 per 100 ml on any day.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.
8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

13.04 The following criteria are established for the purpose of maintaining water quality in the Cheat River and all its tributaries from the West Virginia-Pennsylvania State line to its headwaters. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: A, B1, B2, B3, C, D, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.
2. pH; Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.
3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during the months of December

through April.

4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.

5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.

6. Bacteria: The Coliform group is not to exceed 1000/100 ml as a monthly average value, nor exceed this number in more than 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	,0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: A, B1, B2, B3, C, D, E (See Section 6).

(d) Water Quality Criteria: Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

13.05 The following criteria are established for the purpose of maintaining water quality in those tributaries of the Youghiogheny River in West Virginia which are interstate with Maryland. The following stream quality standards are to apply at all times when flows are equal to or greater than the minimum mean 7-consecutive-day drought flow with a 10-year return frequency.

(a) Present Uses: B1, E (See Section 6).

(b) Water Quality Criteria for Present Uses:

1. Dissolved Oxygen: Not less than 5 mg/1 at any time.

2. pH: Values normal for the waters in the area in question, however, generally held between 6.0 and 8.5, except streams carrying significant quantities of acid mine drainage shall have a pH of not less than 5.5.

3. Temperature: Not to exceed 87°F at any time during the months of May through November and not to exceed 73°F at any time during the months of December through April.

4. Threshold Odor: Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.

5. Toxic Substances: Not to exceed 1/10 of the 96-hour median tolerance limit.

6. Bacteria: The Coliform group is not to exceed 5,000 per 100 ml as a monthly average nor exceed this number in more than 20 percent of the samples examined during the month, nor exceed 20,000 per 100 ml in more than 5 percent of the samples.

7. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

8. Heavy Metals: Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

9. Other Compounds:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

(c) Future Uses: B1, E (See Section 6).

(d) Water Quality Criteria: Same as for Present Uses.

(e) In special cases where the facts warrant, more stringent standards, or exceptions to the above standards, may be established in the individual case.

Section 14. COIN OPERATED AND OTHER COMMERCIAL LAUNDRIES

14.01 The increasing appearance of coin operated and other commercial laundries, particularly in unsewered areas, has led to a variety of waste water treatment problems.

In order to establish minimum requirements governing construction of such waste water handling facilities and in accordance with Chapter 20, Article 5A, Code of West Virginia, the following Administrative Regulations are established.

14.02 Coin operated laundries and other commercial laundries located within the corporate limits of a West Virginia Municipality, Town, or within the boundaries of a Public Service District, or Sanitary District, or a privately owned installation having an approved sewage treatment facility shall divert waste water to these systems for treatment.

(a) Laundry discharging directly to sewer. A laundry without pretreatment of the waste water connected to a sewer requires adherence to local plumbing codes and to any special regulations regarding acceptance of waste at the sewage treatment plant.

(b) Laundry with pre-treatment and discharge directly to sewer. The laundry shall provide equipment for removal of lint from the water.

14.03 Coin operated and other commercial laundries located outside of the corporate limits of a West Virginia minicipality or Town, or the boundaries of a Public Service District or Sanitary District not served by an approved sewage treatment facility shall either divert waste water to an approved sewage treatment facility or shall be governed by the following:

1. Construction and operation of such treatment facilities shall meet the following minimum requirements in addition to those described elsewhere by law or Administrative Regulation series one and two.

- (a) Substantial removal of all settleable solids.
- (b) Ninety percent removal of 5-day bio-chemical oxygen demand.
- (c) Detergent level ABS or LAS shall be reduced to such level that the discharge shall contain no more than 0.5 mg/1 of ABS or LAS.
- (d) Chlorination of final effluent is required at the initial installation. A chlorination contact chamber shall provide a contact period of at least 15 minutes with a residual of 0.5 mg/1 of chlorine at maximum flow.

- (e) Laundry discharging water to a receiving stream used primarily for recreational pursuit and supporting sport fisheries shall in addition to items (a) through (e) provide tertiary treatment for additional BOD removal to 10 mg/1.

2. Laundry with no waste water discharge. A laundry may be located where no discharge of the waste water can be made to a sanitary sewer or a receiving stream. In these cases, holding tanks shall be provided for wastes and the waste must be transported to an approved waste water treatment plant for treatment.

14.04 The following systems are non-allowable and will not be permitted:

- (a) Septic tanks with or without leach fields.
- (b) Cess pools.
- (c) Direct or indirect discharge of untreated or inadequately treated laundry waste water to a West Virginia water.

Section 15. COIN OPERATED AND OTHER COMMERCIAL CAR WASHING ESTABLISHMENTS

15.01 The increasing appearance of coin operated and other commercial car washing establishments, particularly in unsewered areas, has led to a variety of waste water treatment problems.

In order to establish minimum requirements governing construction of such waste water handling facilities and in accordance with Chapter 20, Article 5A, Code of West Virginia, the following Administrative Regulations are established.

15.02 Coin operated and other commercial car washing establishements located within the corporate limits of a West Virginia Municipality, Town, or within the boundaries of a Public Service District, Sanitary District or privately owned installation having an approved sewage treatment facility shall divert waste water to these systems for treatment:

(a) Carwash with discharge directly to sewer. A carwash discharging to the sewer without pretreatment of the waste water requires adherence to local plumbing codes and to any special local regulations regarding acceptance of waste at the sewage treatment plant.

(b) Carwash with pre-treatment system discharging directly to sewer. A device to prevent large items from entering the sewer lines shall be required. A settling tank shall be required to remove settleable solids from the waste water.

(c) Coin operated and other commercial car washing establishments located within the corporate limits of a West Virginia Municipality, Town, or within the boundaries of a Public Service District or Sanitary District having an approved sewage treatment facility and not wishing nor required to utilize this facility must proceed under Section 15.03 of this regulation.

15.03 Any coin operated or other commercial establishment located outside the corporate limits of a West Virginia Municipality or Town, or outside the boundaries of a Public Service District or Sanitary District, or within the corporate limits of a West Virginia Municipality or Town, or the boundaries of a Public Service District or Sanitary District not served by an approved sewage treatment facility shall either divert waste water to an approved sewage treatment facility or shall be governed by the following:

1. Construction and operation of such treatment facilities shall meet the following minimum requirements in addition to those prescribed elsewhere by law or Administrative Regulations series one and two.

   (a) Substantial removal of all settleable solids.

   (b) Ninety percent removal of 5-day bio-chemical oxygen demand.

   (c) Detergent level ABS or LAS shall be reduced to such level that the discharge shall contain no more than 0.1 mg/1 of ABS or LAS.

   (d) Chlorination of final effluent is required at the initial installation, if domestic sewage is to be treated within the installation. A chlorination contact chamber shall provide a contact period of at least 15 minutes with a residual of 0.5 mg/1 of chlorine at maximum flow.

   (e) A grease trap shall be installed and properly maintained within the system to prevent oils and grease entrapment with waste water effluent.

   (f) A grit removal chamber shall be installed in such a manner to be readily cleaned.

   (g) A car wash discharging waste water to a receiving stream used primarily for recreation pursuits and supporting sport fisheries shall in addition to items (a) through (f) provide tertiary treatment equipment in addition to secondary treatment. Tertiary treatment provides for additional BOD removal to 10 mg/1 in the effluent.

2. **Carwash with no waste water discharge.** Carwashes may be located where no discharge of the waste water can be made to a sanitary sewer or a receiving stream. In these cases, holding tanks shall be provided for wastes and the wastes must be transported to an approved waste water treatment plant for treament.

3. **Carwash re-using waste water.** Carwashes employing a re-use system shall provide removal facilities for settleable materials. These materials must be transported to an approved disposal site.

15.04 The following systems are non-allowable and will not be permitted.

   (a) Septic tanks with or without leach fields.

   (b) Cess pools.

   (c) Direct or indirect discharge of untreated or improperly treated waste water from coin operated and other commercial car washing establishments to West Virginia waters.

Section 16. TROUT STREAMS

16.01 Trout streams, headwaters of streams, trout lakes and reservoirs and the hypolimnion of lakes and reservoirs containing salmonids should not be warmed. No heated effluents should be discharged in the vicinity of spawing areas. These streams include but are not limited to the following streams or portions thereof: Dry Fork, a tributary of the Tug Fork River; East River and Rich Creek, tributaries of the New River; Potts Creek, a tributary of the James River; Opequon Creek, a tributary of the Potomac River; Mill Creek, a tributary of Opequon Creek; the South Branch of the Potomac River from Petersburg to its headwater; and Long Marsh Run, a tributary of the Shenandoah River.

(a) Water Quality for Trout Streams:

1. During any month of the year, heat should not be added to a stream in excess of the amount that will raise the temperature of the water more than 5°F. (based on the minimum expected flow for that month). In lakes and reservoirs, the temperature of the epilimnion should not be raised more than 3 °F by the addition of heat of artificial origin.
2. The normal daily and seasonable temperature fluctuations that existed before the addition of heat due to other than natural causes should be maintained.
3. The maximum temperatures for cold waters are expressed in the following table:

	Daily Mean °F	Hourly Max. °F
October—April	50	55
September & May transition period	58	62
June—August	66	70

4. Dissolved Oxygen: Not less than 6.0 mg/1 at any time.
5. pH: Not less than 6.0 nor more than 8.5.

6. **Threshold Odor:** Threshold odor not to exceed a threshold odor number of 8 at 60°C as a daily average.

7. **Toxic Substances:** Not to exceed 1/10 of the 96-hour median tolerance limit.

8. **Bacteria:** The Coliform group is not to exceed 1,000 per 100 ml as a monthly average value, nor exceed this number in 20 percent of the samples examined during any month, nor exceed 2,400 per 100 ml on any day.

9. **Radioactivity:** Gross beta activity not to exceed 1,000 picocuries per liter (pCi/1) nor shall activity from dissolved strontium-90 exceed 10 pCi/1, nor shall activity from dissolved alpha emitters exceed 3 pCi/1.

10. **Heavy Metals:** Not to exceed the following:

Constituents	Concentration mg/1
Arsenic	0.01
Barium	0.50
Cadmium	0.01
Chromium (Hexavalent)	0.05
Lead	0.05
Silver	0.05

11. **Other Compounds:** Not to exceed the following:

Constituents	Concentration mg/1
Nitrates	45
Chlorides	100
Sulfates	200
Phenol	0.001
Cyanide	0.025
Fluoride	1.0
Selenium	0.01

Section 17. WATER PURIFICATION WASTE WATER CONTROL MEASURE

17.01 Waste Disposal — Provision must be made for proper disposal of wastes from water treatment plants. Such wastes include but are not limited to those eminating from sanitary facilities, laboratories, clarification facilities, softening facilities, and filter backwash. Discharges shall be governed by Chapter 20, Article 5A, Code of West Virginia and the following regulations:

(a) The following means of waste and sludge disposal may be considered:

1. Lagoon design must provide the following:
   - a. Location free from flooding.
   - b. Dikes, deflecting gutters or other means of diverting surface water when necessary.

   - c. A minimum depth of 4 to 5 feet.
   - d Multiple cell.
   - e. Adjustable decanting devices.
   - f. Convenient cleaning.

2. Sludge beds for lime softening sludge or other sludges must provide the following:
   - a. Location free from flooding.
   - b. Multiple beds, each designed for at least one year's storage.
   - c. Size of sludge beds will be governed by the concentration of solids to be disposed of with an ultimate depth of 12 inches dry basis.
   - d. Distribution channels may be required for spreading sludge over entire area.
   - e. Easy access roads and loading ramps with proper under drains must be provided.
   - f. Tank Truck — Trucking wet sludge to agricultural lands or disposal areas requires proper handling, vehicles and equipment to permit hauling and spreading without creation of nuisances. It is necessary to provide sludge holding facilities for use during times that trucks cannot operate.

3. Community Wastewater Treatment Facility—Discharges to sewer systems and their treatment facilities depend on type of treatment, rate of discharge, plant design capacity, character of waste, and local conditions.

4. Other Methods — These include holding tanks, vacuum filters, centrifuging and recalcining. Detailed studies must be made to justify their use.

5. Sanitary Waste — The sanitary waste from water treatment plants, pumping stations, etc., must receive treatment. Waste from these facilities must be discharged either directly to a sanitary sewer system with approved treatment or to an individual waste disposal facility providing suitable treatment. The effluent must be acceptable for discharge to the surface of ground waters.

OHIO RIVER VALLEY WATER SANITATION COMMISSION

An interstate agency representing: Illinois • Indiana • Kentucky • New York • Ohio • Pennsylvania • Virginia • West Virginia. Headquarters: 414 Walnut Street, Cincinnati, Ohio 45202

Notice of Requirements (Standards Number 1-70 and 2-70) Pertaining to Sewage and Industrial Wastes Discharged to the Ohio River

*Issued*________________*to*________________________________

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You are hereby notified that on November 13, 1970, the Ohio River Valley Water Sanitation Commission, acting in accordance with and pursuant to authority contained in Article VI of the Ohio River Valley Water Sanitation Compact, established, subject to revision as changing conditions require, the attached standards for the modification or treatment of all sewage from municipalities or other political subdivisions, public or private institutions, corporations, or watercraft, and for the modification or treatment of all industrial wastes discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, Pennsylvania.

Under terms and provisions of the Ohio River Valley Water Sanitation Compact all sewage from municipalities or other political subdivisions, public or private institutions, corporations or watercraft and all industrial wastes discharged or permitted to flow into the Ohio River will be required to be modified or treated to the extent specified in the attached standards.

As one of the municipalities, subdivisions, institutions or corporations subject to the provisions of the Ohio River Valley Water Sanitation Compact, you are herewith called upon to consult with the

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not later than________________regarding waste-control facilities and procedures that will be required to achieve compliance with these standards.

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Chairman

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Executive Director and Chief Engineer

Commissioners for

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DEFINITIONS AND PROCEDURES FOR APPLICATION OF POLLUTION CONTROL STANDARDS NOS. 1-70, 2-70

The following definitions and application procedures are incorporated as part of Pollution Control Standards Nos. 1-70, 2-70:

(a) "Sewage" means the water carried human or animal wastes from residences, buildings, industrial, commercial or governmental establishments, public or private institutions, watercraft and floating facilities, or other places, together with such groundwater infiltration and surface-waters as may be present. The admixture with sewage, as defined, of industrial wastes, as hereinafter defined, shall also be regarded as sewage;

(b) "Industrial waste," other than cooling water, means any liquid, gaseous, solid material or waste substance or combination thereof including garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime, cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, heat and all discarded matter resulting from any process or operation, including storage and transportation, manufacturing, commercial, agricultural and government operations, or from the development and recovery of any natural resources;

(c) "Cooling water" means water used as a heat transfer medium to which no process, waste or other materials, exclusive of chlorine, are added intentionally or unintentionally prior to discharge;

(d) "Substantially complete removal" means removal to the lowest practicable level attainable with current technology;

(e) Methods for determining waste constituents and characteristics shall be those set forth in the most recent edition of "Standard Methods for the Examination of Water and Wastewater," prepared and published jointly by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation, except that such other methods may be used as are approved by the Commission.

POLLUTION CONTROL STANDARD NO. 1-70

All sewage from municipalities or political subdivisions, public or private institutions, or installations, or corporations, or watercraft, and all industrial wastes, other than cooling water as hereinafter defined, discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, shall be so treated or otherwise modified as to provide for:

A. Substantially complete removal of settleable solids;

B. Substantially complete removal of oil (in whatever state, including free, emulsified, dispersed and dissolved oils), debris, scum, and other floating materials;

C. Reduction of suspended solids, dissolved solids and other materials to such degree that the discharge will not produce turbidity, color or odor in the river, or impart taste to potable water supplies, or cause the tainting of fish flesh;

D. Reduction of any and all constituent materials to such a degree that the concentration thereof, singly or in combination, in any discharge is not harmful to human health, and reduction of the following chemicals to such a degree that the concentrations thereof in any discharge do not exceed (1) the limits specified in the tabulation below or (2) such lower limits as may be required for compliance with subparagraph (E) of this Pollution Control Standard No. 1-70:

Inorganic chemicals	Limiting concentration (mg/1)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Lead	0.05
Mercury	0.005
Selenium	0.01
Silver	0.05
Organic chemicals	
Cyanide	0.2
Pesticides	
Aldrin	0.017
Chlordane	0.003
DDT	0.042
Dieldrin	0.017
Endrin	0.001
Heptachlor	0.018
Heptachlor epoxide	0.018
Lindane	0.056
Methoxychlor	0.035
Organic phosphates plus carbamates (as parathion equivalent cholinesterase inhibition)	0.1
Toxaphene	0.005
Herbicides	
2,4-D plus 2,4,5-T plus 2,4,5-TP	0.1

E. Reduction of any material or, if necessary, all materials contained in any discharge which singly or in combination are toxic or harmful to aquatic life to such a degree or degrees that the calculated concentration(s) of such material or materials in the river does not exceed one-twentieth of the 96-hour median tolerance limit (96-hr. TL_m) for aquatic life;

F. Reduction of radioactive materials to such degree that (1) concentrations of *unidentified* radionuclides in the discharge do not exceed (a) 30 pcl or (b) limiting values specified by the Atomic Energy Commission for water in which certain radionuclides are known to be absent, as set forth in Column 2, Table II, Paragraph 3.C, Notes to Appendix B, Title 10, Chapter 1, Code of Federal Regulations (January 1, 1970), or (2) concentrations of *identified* radionuclides in the discharge do not exceed limiting values for water specified by the Atomic Energy Commission, as set forth in Column 2, Table II, Appendix B, Title 10, Chapter 1, Code of Federal Regulations (January 1, 1970);

G. Reduction of fecal coliform bacteria to such degree that (1) during the months of May through October fecal coliform density in the discharge does not exceed 200 per 100 ml as a monthly geometric mean (based on not less than ten samples per month), nor exceed 400 per 100 ml in more than ten percent of the samples examined during a month, and (2) during the months of November through April the density does not exceed 1,000 per 100 ml as a monthly geometric mean (based on not less than ten samples per month), nor exceed 2,000 per 100 ml in more than ten percent of the samples examined during a month;

H. Control of hydrogen ion concentration to such degree that the pH is not less than 5.0 nor greater than 9.0;

I. Reduction in 5-day biochemical-oxygen-demand load (pounds per day) of not less than 92 percent (as a monthly-average value), provided, however, that a lesser degree of reduction may be applied, but not less than 85 percent (monthly-average value), if as a result the biochemical-oxygen-demand (BOD) load does not exceed that amount which will increase the BOD of the river, on a calculated basis, by more than 0.05 milligrams per liter at flows equal to or exceeding "critical" flow values specified in the following table:

River Reach		Critical flow in cfs*
From	To	
Pittsburgh (mi. 0.0)	Willow Is. Dam (161.7)	6,600
Willow Is. Dam (161.7)	Gallipolis Dam (279.2)	7,700
Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,900
Meldahl Dam (436.2)	McAlpine Dam (605.8)	12,100
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,300
Uniontown Dam (846.0)	Smithland Dam (918.5)	20,000
Smithland Dam (918.5)	Cairo Point (981.0)	48,500

*Minimum 7-day flow once in ten years.

J. Reduction of heat content to such degree that the aggregate heat-discharge rate from the municipality, subdivision, institution, installation or corporation, as calculated on the basis of discharge volume and temperature differential (temperature of discharge minus average upstream river temperature), does not exceed the amount calculated by the following formula, provided, however, that in no case shall the aggregate heat-discharge rate be of such magnitude as will result in a calculated increase in river temperature of more than 5 deg. F.;

Allowable heat-discharge rate (Btu/sec) =
$62.4 \times$ river flow (cfs) $\times (T_A - T_R) \times 90\%$

Where:

T_A = Allowable maximum temperature (deg. F.) in the river as specified in the following table:

	T_A		T_A
January	50	July	89
February	50	August	89
March	60	September	87
April	70	October	78
May	80	November	70
June	87	December	57

T_R = River temperature (daily average in deg. F.) upstream from the discharge

River flow = measured flow but not less than critical flow values specified in the following table:

River Reach		Critical flow in cfs*
From	To	
Pittsburgh, Pa. (mi. 0.0)	Willow Is. Dam (161.7)	6,500
Willow Is. Dam (161.7)	Gallipolis Dam (279.2)	7,400
Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,700
Meldahl Dam (436.2)	McAlpine Dam (605.8)	11,900
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,200
Uniontown Dam (846.0)	Smithland Dam (918.5)	19,500
Smithland Dam (918.5)	Cairo Point (931.0)	48,100

*Minimum daily flow once in ten years.

POLLUTION CONTROL STANDARD NO. 2-70

All cooling water from municipalities or political subdivisions, public or private institutions, or installations, or corporations discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0 to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, Pennsylvania, shall be so regulated or controlled as to provide for reduction of heat content to such degree that the aggregate heat-discharge rate from the municipality, subdivision, institution, installation or corporation, as calculated on the basis of discharge volume and temperature differential (temperature of discharge minus upstream river temperature) does not exceed the amount calculated by the following formula, provided, however, that in no case shall the aggregate heat-discharge rate be of such magnitude as will result in a calculated increase in river temperature of more than 5 deg. F.:

Allowable heat-discharge rate (Btu/sec) =
$62.4 \times$ river flow (cfs) $\times (T_A - T_R) \times 90\%$

Where:

T_A = Allowable maximum temperature (deg. F.) in the river as specified in the following table:

	T_A		T_A
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Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,700
Meldahl Dam (436.2)	McAlpine Dam (605.8)	11,900
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,200
Uniontown Dam (846.0)	Smithland Dam (918.5)	19,500
Smithland Dam (918.5)	Cairo Point (981.0)	48,100

Minimum daily flow once in ten years.

MR. HALL: West Virginia's portion of this conference will deal strictly with 3.2 miles of the Ohio River.

Pursuant to the Federal Water Quality Act of 1965, the State was given the opportunity to adopt after public hearings water quality criteria applicable to interstate waters or portions thereof. The criteria, along with the plan of implementation and enforcement was submitted to the Secretary on June 30, 1967.

Federal law required among other things that standards of quality could be established to protect the public health and welfare, enhance the water quality of the receiving stream. The State authority establishing such standards must take into account the uses and value of the waters for public water supply, propagation of fish and wildlife, recreation, agriculture, industry, and all other legitimate uses.

The State criteria along with the implementation and enforcement plan has received full approval by the Administrator of EPA in a letter dated July 30, 1971.

It should be recognized that there are other interested parties involved in the overall activity of water pollution abatement and water resources development in the Ohio River Basin. We make particular reference to the Southern Regional Environmental Conservation Council, which is developing a compact that will permit legal and binding agreements for States, which should be considered in future undertakings; the Ohio River Basin Commission, a State-Federal body that has specific assignments in planning and construction of projects within the Ohio Basin; the Ohio River Valley Water Sanitation Commission, a compact of State and Federal control Agencies directly involved in water pollution management; and the U.S. Army Corps of Engineers acting under planning authority and the Refuse Act.

Federal participation in these agencies has led to the establishment of various timetables, standards, criteria, and planning for the Ohio River Basin.

Now, as I said earlier, we are concerned with 3.2 miles of this Ohio River in West Virginia. We have established water quality stations throughout the State of West Virginia, and we have one such station located at Chester. We have been collecting water quality data at this station since 1968. And I would like to take just a few minutes to read you some of the results of this summary of this information at this one particular station.

The dissolved oxygen, the State standard is 5 mg/l for 16 hours and never below 3.0 at any time. The maximum D.O. recorded was 15; the minimum was 6. No violation. The pH was 5.5 to 9; the maximum was 7.4, the minimum was 6.5. No violation. The temperature not to exceed 93°, May to November, or 73° from December to April. The maximum temperature, 84; the minimum was 32. No violation. Threshold odor: the maximum was 4; the minimum was 1. The times the criteria was violated, none.

Now, we get into the bacteria. The controlling standard would be 2,400 coliforms per hundred for contact recreation on any day. The maximum recorded was 68,000; the minimum was less than 100, and we had 16 violations occurring.

We only ran one arsenic and it was within the limits required.

Cadmium: the standard is 0.01. The maximum and minimum shows that no violations occurred.

Chromium: the standard is 0.05. We had no violations occurring.

Lead: No violations occurring.

Silver: No violations occurring.

Nitrates: No violations occurring.

Phenol: The West Virginia standard is .001 mg/l. The maximum was .015, with a minimum of .001. The criteria was violated 17 times.

Fluoride: The criteria is 1 mg/l. The maximum that we recorded was 1.4, with a minimum of .01, or we had two violations.

Selenium: We did not run any samples.

Now this is over a period of 1968 to 1971 and represents 21 samplings throughout the entire period of time.

In conclusion, the water quality of the Ohio River from Chester, West Virginia, Mile Point 43.4, to the West Virginia state line at Mile Point 40.0 can be classified as intermittently polluted, based on monitoring data from Station 0-274 located at Chester, West Virginia.

Present uses of the Ohio River in this 3.4-mile stretch is protected for water contact recreation, public water supply, water supply industrial, water supply agricultural, propagation of fish and aquatic life, water transport and cooling and treated waste transport assimilation.

The only West Virginia municipality in this section of the Ohio River is the town of Chester with a primary sewage treatment plant that must upgrade to secondary by 1975. Chester also has a raw river water intake at Mile Point 42.0 with a daily withdraw of approximately 600,000 gallons.

Industrial use is limited to discharge to city sewers. There are several marinas and docks that are located right below Cunningham Run at Chester.

The Division of Sanitary Engineering of the West Virginia State Health Department, the State agency responsible for public water supply and treatment, advises that no bacterial or taste and odor problems have been reported from the Chester water treatment facilities attributed to the raw water of the Ohio River.

In conclusion, we feel, in West Virginia, that technically criteria have been violated on occasion. However, the degree and the parameters involved do not warrant this type of a conference. Should the administration of EPA desire, more appropriate action; namely, the 180-day notice, should be followed.

At last count, three State water pollution control agencies, three Federal water pollution Agencies, one interstate water pollution compact, one interstate planning compact, not to mention the plans completed by the U.S. Army Corps of Engineers on the Ohio and in Appalachia, are working on the Ohio River.

Our water pollution control agency has enjoyed a good working relationship with the Federal Agencies, such as the Environmental Protection Agency, Corps of Engineers, Agriculture Department, and many others. These Agencies, until recently, have been in a position to assist the State in its water pollution abatement efforts. Recent activities have been more and more of a parallel nature, however, a duplication of State efforts rather than providing assistance to the State.

Thank you.

MR. STEIN: Thank you, Mr. Hall.

Any comments or questions?

If not, we will stand recessed for 10 minutes.

(Short recess.)

MR. STEIN: Let's reconvene.

Mrs. Coyne.

STATEMENT OF MRS. MARY L. COYNE,
WEST END ELLIOT CITIZENS COUNCIL,
PITTSBURGH, PENNSYLVANIA

MRS. COYNE: I am Mrs. Mary Coyne. I represent the West End Elliot Citizens Council and I am their representative on the Sawmill Run Task Force.

Right now I am so mixed up I don't know whether I belong here or I don't. I came here thinking I could find out who you go to against violators of pollution. But as I sit here, I really got the answer of why you have so many citizens councils. We are the little people that are in the middle of the whole mess. We get our bill every year and what we see here is exactly what we hear every day and we get every day: a political football bounced from one to the other. Everybody is looking for a way to evade the law and nobody will listen to what we have to say.

Now, maybe some of you don't even know where Sawmill Run is because it wasn't important enough to put on this map, but if you would look out this window about 1 mile from where the crow flies, Sawmill Run Creek comes into the Ohio River, and this is one of the biggest open sewers that you ever saw.

I wish all these men that sit here would come with us and make a little tour of Sawmill Run. For 35 or 40 years the people in the west end have been trying to tell public officials that this was an open sewer, but nobody would listen. Finally, about 3 years ago, some of the public officials went on a tour with us. I guess they dared us to prove how many open sewers were running into Sawmill Run Creek, so we made the tour.

As a result, the Sawmill Run Task Force was set up.

Now, this is a conglomeration of all agencies from me to the Federal Government. Now I am on no one's payroll — political, business, or anything else — and as I stand here I am going to tell you what the citizens think about pollution and what is being done to alleviate it.

We live on the flat end at the mouth of Sawmill Run, which is practically 8 miles long; runs from the Ohio River to Bethel Park or South Park in that territory. Approximately 160,000 people live in this valley. And as we see it, we have heard business being condemned for polluting the rivers, but we are here to say to you that the biggest polluter is the city of Pittsburgh and we want to know what EPA is going to do about municipal pollution.

We see in the papers that the Government gave communities in Cleveland 180 days to clean up. Our mess comes from 13 communities around the city of Pittsburgh that dump into a sewer line that won't take the load, and every time it rains we go into our basements, we go in our yards, in our streets, and what came out of their sewer lines in the plush communities, we find it in our basements, in our streets, and in our backyards. This has been going on for an awful long time.

We fought this thing and we fought it, and after about 2 years of task force meetings -- a year and a half -- where all of these people thought it was funny when I told them this, we finally convinced them, and we got a Federal appropriation for the U.S. Engineers to come in and make a study of the creek. From this study, which is still going on, the city of Pittsburgh decided they would dredge the creek. They have come down and they dredged the creek behind our playground because at this place the raw sewage and the flooding of Sawmill Run Creek, every time it rained, was in the playground. It was in the street at the side of the playground; it was in the street in front of the playground. As the result, there was a bridge there, which the engineers said was too low. Every time the creek got high, it made the water back up and come down into the street.

So as a result, the city of Pittsburgh decided they would raise the bridge. Why, we don't know, because this bridge only accommodates one company, which is definitely in violation. It empties its sewage, and the house connected with it directly into Sawmill Run Creek.

Now we have here a note that says this is a report; the status of the Sawmill Run stream pollution violations investigated by the Allegheny County Health Department, April 15, 1971.

It says: "This report provides information on investigations conducted by Allegheny County Health Department since 1957, violation notices issued, and the current status of the problem. The above chart indicates 50 violations were reported; 47 violation notices were issued; 10 of the violations were corrected and 40 violations remain unresolved."

Well, we know that there is a lot more than 40 violations right in the west end district where we live.

In the cases of individual residents, property limitations will not permit on-lot sewage disposal, and public sewers are not available. The city of Pittsburgh has been petitioned by residents to provide sewers for the problem areas. As of this date, their efforts have been to no avail.

Now to get into the whole mess of Sawmill Run is too complicated, but we are here as the people in the west end who get their bill every year from city, county, State and Federal Government, to pay our part of what bill is being run up right here.

We want to know: Who do we turn to? Are we so different from Cleveland? We can't get city officials to do anything. The little bit that they do apparently the county -- and we say this to you: There is an election this year, but when this election is over, we will bet you that every private violator in the west end will get a notice to either put in a sewerline or else. And at the same time, the city of Pittsburgh will not provide sewers for these people.

Well, Mr. Wald of ALCOSAN talked here yesterday. I would have liked to have him here today, because since -- is he here? -- when ALCOSAN went into effect about 15 years ago, every resident of the city of Pittsburgh that used city water got a sewerage bill. Now, all these people in the west end that their sewerlines run directly into Sawmill Run Creek have been paying sewerage bills.

Now, ALCOSAN certainly had a way to find out from the city of Pittsburgh who has sewerlines and who doesn't, and who puts their sewage into Sawmill Run Creek.

And another thing I would like ALCOSAN to answer is this: At the interceptor of Sawmill Run sewerline at the river, where it goes into ALCOSAN's line, is a door. Every time the river gets a little bit high, this door is shut because ALCOSAN doesn't want the river running into their equipment. What happens? Our sewerlines are plugged up, in other words. We get a heavy rain the sewers keep filling up, filling up.

We have approximately 150 million gallons of water that passes one corner going into this interceptor that takes approximately 50 million gallons a day. And when I asked ALCOSAN what happens to the rest of the sewage when you close that gate -- only so much can back up -- what happens to the rest of it? — I was told it goes into the Ohio River and it is perfectly legal.

This is why I am here. We are only the little people that pay the bills. We don't know the answer. Everywhere we turn we hear about the county laws; we hear about the good State laws; we hear about the Federal laws; we hear of other parts of the country being prosecuted. But here we sit. We get no answer from anybody. All we get is evasion -- what the cities do -- and they won't tell us. We can't get an answer. We can't get an answer from anybody.

So I am here to find out who is going to enforce all of these good laws that were passed.

MR. STEIN: Any comments or questions?

MR. LYON: Yes, Mr. Chairman.

I certainly share Mrs. Coyne's sense of frustration about Sawmill Run. Sawmill Run's problems were on the agenda of the Sanitary Water Board in 1923, and as she said correctly they have not yet been solved.

I think, though, that you can tell, Mrs. Coyne, that things are finally under way with the help of the county. And I am sure Commissioner Foerster will also comment on this — a rather massive engineering program is under way together with the Department of Transportation of the State to resolve both the engineering and to the extent that transportation and flood control problems are involved, the flood control and pollution problems of Sawmill Run.

She also mentioned the combined sewer overflow problem. The State has issued orders to the municipalities that have combined sewers to submit reports regarding their discharges, and we intend to issue orders for abatement of those problems, too. So that things are under way that are designed to resolve the problems of Sawmill Run.

If I may, I would like to take this opportunity to introduce Commissioner Foerster —

MR. STEIN: Let's see if there are any comments.

Are there any more comments or questions?

MR. RILEY: Mr. Lyon, with regard to this combined sewer problem, what is the status of the city of Pittsburgh or of the Allegheny County Sanitary Authority with regard to the preparation of their feasibility studies or reports on this combined sewer problem? Are they on schedule or are they preparing a report? What is the status?

MR. LYON: I can call on our people from our regional office. I don't know whether they have the data with them or not.

Ken, do you happen to know, or Howard?

Mr. Luley is our regional engineer.

MR. RILEY: Well, this is partly a combined sewer problem. We would be interested in knowing what is happening here.

MR. LYON: It is much more than a combined sewer problem.

MR. RILEY: The particular problem at Sawmill Run — is that partially a combined sewer problem?

MR. LYON: She mentioned a combined sewer problem. I think it clearly is involved. There is no question in my mind.

Howard.

MR. LULEY: The city of Pittsburgh had received an order to submit a report concerning the combined sewer overflow problem. That report was received by the department.

MR. LYON: In other words, they have complied with our order, and the next step will be the order to abate the pollution from the combined sewers. As you well know, one of the big issues that will confront us is whether or not the Federal construction grant money can be used for abating pollution from combined sewers. I understand that in some isolated instances that has been done, but as far as we know, the Federal Government has not yet really developed a grant program that would allow cities like Pittsburgh to get funds for that kind of a purpose.

MR. RILEY: The report submitted — was that just a study report or feasibility report? Are they proceeding with definite plans or program or design of a program to solve these combined sewer problems?

MR. LULEY: That report was a study of the problem.

MR. RILEY: I see. Then next is the feasibility report?

MR. LULEY: The second phase was to come up with a report as to what would be done. That has not been done.

MR. RILEY: You haven't issued orders to prepare that. Do you anticipate when you would issue such orders?

MR. LYON: We anticipate to do that within the next 6 months.

MR. STEIN: I would like to take this opportunity myself to thank Mrs. Coyne. You know quite often I share the view with many of you in wondering what we are doing here when we listen to all this talk go back and forth. But usually in these conferences, if Mrs. Coyne comes up and explains her situation and experiences, then I know why we are here.

MR. LYON: Mr. Chairman, it is a real pleasure now to introduce Tom Foerster, who is the Commissioner in Allegheny County. But he is much more than that. He is a man who for many years has dedicated himself to the goal of a better environment. When he was in the legislature as the chairman of the Committee on Fisheries, he was a legislative leader in developing a number of legislative improvements in Pennsylvania's laws regarding clean streams and mine reclamation. He is a dedicated environmentalist and we are very happy to see him here today.

STATEMENT OF THOMAS J. FOERSTER,
ALLEGHENY COUNTY COMMISSIONER,
PITTSBURGH, PENNSYLVANIA

MR. FOERSTER: Thank you very much, Mr. Lyon. Mr. Stein and gentlemen. I did come in a little late for all of Mrs. Coyne's remarks, but from what I did hear everything she said is essentially correct.

And perhaps — not only are the citizens frustrated, gentlemen, but local governmental officials are also equally frustrated. We have enough studies; we have enough surveys — I am talking about Saw Mill Run right now — but we do need the dollars to go ahead for a solution.

The Allegheny County Health Department does have the authority to issue orders, yes, even to home owners to abate pollution. But if the sewers aren't there for them to tap into, are we to order people out of their homes without homes to move into in this day and age of critical housing? Yes, I think it is going to take a lot of dollars. And I have been on both ends of government here, both the legislative and also the administrative end, and I can tell you it is a lot easier to sit in some of the legislative halls in Harrisburg and on my visits to Washington, to pass laws; but I think it is another thing, then, to properly fund and put into execution some of the laws that have been passed.

But I sincerely welcome the opportunity to testify here concerning the pollution of the Ohio River and its tributaries.

In my 10 years in the Pennsylvania State Assembly and during almost 4 years as Commissioner of Allegheny County, I have been deeply concerned about the pollution of our air and water. And, as Walter Lyon indicated, most of my attention in the 1960's in the legislature was devoted to a new Clean Streams Act and Strip Mining Act, and all of the other conservation legislation that we did pass here in Pennsylvania in the last 10 years.

These were all significant steps, but, as I indicated, legislation cannot eliminate pollution. It takes money. And the simple fact is that municipalities, counties and States do not have the resources to tackle the problem on their own. The Federal Government — that level of government that takes the most out of the pockets of taxpayers — I feel must share both the burden of regulation and financing such projects.

After establishing the standards, you cannot rely on a patchwork of State and Federal regulations to do the job that wants done. I feel that this must be a coordinated effort.

Secondly, I feel that the share that the Federal Government has assumed to date for treatment of pollution — whether it be municipal pollution, whether it be from abandoned mines here in western Pennsylvania — I feel the Federal Government has an obligation to this area, and a more serious obligation than they have undertaken to date to provide the money needed to treat sewage and to treat industrial wastes, and to treat acid mine drainage.

The home owner, Mr. Chairman, just can no longer assume the fantastic burdens they have been assuming to date to pay for these treatment facilities. To date, Mr. Chairman, the home owner here — not only here but all over this country, I think, is faced with an overwhelming burden. And I think the level of government — the Federal Government — as I indicated, that has broader-based taxing powers should assume a greater share of the burden. Pittsburgh and Allegheny County, I think, have a unique claim for this type of assistance.

It was in the coal and steel right here in our valleys that helped bring victory in World War II and during every type of national emergency. It was during this same era that many of our mines were worked out and abandoned, and today residents along the Ohio River are reaping the 25-year-old harvest of those war years in acid drainage from abandoned mines.

Had the Federal Government spearheaded the drive for the treatment of industrial mine and municipal wastes when it should have, not 25 years ago, maybe 50 years ago, we would not be faced with the pollution problem we have today.

Mine owners had the technical know-how to solve the problem of acid mine drainage by simple neutralization and other means, but they dragged their feet with the time-worn excuse that it would not be economically feasible.

The problem of pollution in the Ohio River was further compounded by industrial wastes and inadequate sewage treatment. And so today we are confronted with a complex problem which has been decades in the making.

Flood control projects in the upper reaches of the Ohio River drainage basin, such as the Conemaugh, Loyalhanna, Crooked Creek, and Youghiogheny Reservoirs, were constructed to serve two purposes: 1) low flow augmentation and 2) dilution of wastes. Neither low flow augmentation with impounded acid waters nor dilution of wastes with such waters will ever improve the quality of water in the basin.

We are in need of massive Federal aid for the following: 1) treatment of mine drainage before impoundment in flood control reservoirs; 2) sealing abandoned coal mines and other reclamation projects which are sources of mine acid drainage; 3) construction and upgrading of all sewage treatment plants presently in service.

The following polluted areas along the Allegheny River watershed also need measures taken to correct acid drainage: the Big Scrubgrass Creek, the Clarion River watershed, the Red Bank Creek area, the Mahoning Creek area, Crooked Creek at the Ernest Mining Complex near Shelocta, Conemaugh River — the upper section, and Black Lick Creek Area, the Loyalhanna Creek, the Bradenville overflow near Latrobe, and the Crabtree area below Latrobe.

Trouble spots along the Youghiogheny River include the Cassleman River near its confluence, the abandoned mine area at Indian Creek, and the Big and Little Sewickley Creeks in Westmoreland County. Also the drainage of the Monongahela and Cheat Rivers before it enters Pennsylvania from West Virginia should be corrected.

I would like to present as part of the record today results of tests conducted by Michael Watts of the Allegheny County Bureau of Tests which I will leave with you. These are some of the hard facts of pollution along the Ohio River and its tributaries, and I am sure the story is the same along most of our urban-rimmed rivers. (Pp. 400-437.)

So to return to the basic question to which is the best way to proceed in solving these problems. Besides national regulations for water and purity and substantial Federal grants for treatment, I believe we also need a better flow of information between the Environmental Protection Agency and the State Department of Environmental Resources.

In preparation for my appearance here today I was disturbed to learn that the EPA has not talked to the principals involved in enforcement of our State environmental laws. Moreover, the computers of each agency are not even geared to exchange valuable data so that in effect we have duplicity of effort rather than dialogue.

I think that this bottleneck can be broken by establishing a national information system on pollution, just as we have a national information system on our weather.

Mr. Chairman, I can take you up the Monongahela

River today, which flows into the Ohio, as you know, I can show you thousands of gallons of acid mine drainage pouring out at this very moment right into that Monongahela River from abandoned mines which are the results of uncontrolled mining of years ago. And because Allegheny County and western Pennsylvania has been the arsenal for this country in times of all emergencies, I think the Federal Government has a responsibility to come in here and provide the funds for our State Government to let them do the job.

They have the surveys; they have the studies. You don't have to lose any time with further studies and further engineering surveys and further conferences. Just provide the hard dollars that are necessary, and we can improve the quality of our water.

I have seen many home owners up in the Monongahela Valley, whose homes right today are being threatened with water coming into their homes from abandoned mines that are breaking out every day. Stanley Fetchen up in Forward Township, just 2 months ago, arrived home one day and he opened his garage doors and out came a torrent of water because of another outbreak of an abandoned mine. And I don't think citizens should have to live like this. And yet those abandoned mines along the Monongahela River are going to be here for the next 50 years pouring out the same kind of acid mine drainage unless there are some hard dollars. It is very easy for legislators in Harrisburg and our Congressmen to pass all types of laws. It is very easy for administrative Agencies from Washington and Harrisburg to come in and tell people what is going to happen. But it will never happen unless we get the dollars to do the job.

As I indicated, Mr. Chairman, the State is ready here to do the job on our rivers. I think the State is ready to do what is right and proper, and I guess in Saw Mill Run, if the dollars are provided. But unless the message somehow is carried back to the Congressmen that of all the billions of dollars we spend in this country every year on many projects, I seriously question the billions we send overseas for projects I will never understand, if we don't start to spend those billions to clean up our own environment, we are going to have the same condition in our rivers that we have today, and Saw Mill Run is going to remain.

Yes, the county did agree to fund with the State a $356,000 study. So when the study is over, what happens then? Who is going to implement it? This is what the people are always asking. This is what Mrs. Coyne always asks. The studies are finished. What happens? Who is around with the dollars to go in and implement that study,

T. Foerster

and when this latest study is done, Mrs. Coyne and other people are going to be asking, "Well, what now?" It really gets to be a joke as to what happens with some of the projects around here. You need the dollars to implement them.

My only wish is that we meet the problem together and not by going separate routes, and the same destination.

In conclusion, may I say that I find the State and Federal concern over water and air pollution refreshing compared to a short 6 years ago when the conservation fight was left to a handful of dedicated sportsmen in the county and State.

I wish to thank you gentlemen for giving me the opportunity to testify and if we can ever be of any assistance whatsoever here in Allegheny County in providing any type of information or studies or data, we stand here to help. But, again, if I didn't contribute anything more today than to try and carry home to you — let's forget the studies; let's forget the hearings; let's get on somebody's back down in Washington to provide the funds to do the job.

I think our Department of Environmental Resources right here in Pennsylvania — they have volumes and volumes of studies and they have plans ready to go. Walter Lyon and his Division of Sanitary Engineering years ago in the State Department of Health — they have had long-range 10-year cleanup programs, but where are the dollars? The dollars aren't there, and I would hesitate to ask today where we stand on that program. I am not criticizing the Commonwealth, I am criticizing the Federal Government, that level of government that I think has neglected over the years — I am not talking about the present situation — but has neglected over the years to provide the hard dollars and the leadership to do the effective job that has to be done.

Thank you very much.

MR. STEIN: Thank you, Mr. Foerster. Any comments or questions?

MR. LYON: Mr. Chairman, Mr. Foerster had a rather forceful message for us here. He said very rightly, particularly in relation to sewage and mine drainage, the action is where the money is.

I have a question. Will you recommend to Mr. Ruckelshaus that he request Congress for more than research and study money in the mine drainage field? Will you recommend to him that he go to Congress and ask for some action money? This is relevant to this conference, and to the concerns of this conference.

MR. STEIN: Who are you asking, Mr. Riley or me?

MR. LYON: No, I am asking you, Mr. Chairman.

MR. STEIN: I will take back your question, and give him your views on this.

MR. LYON: I have one other comment regarding a very important point that Mr. Foerster made that is relevant to this — that is very relevant to this conference. You have, on a number of occasions, indicated that you don't have schedules and information.

For the last 7 years I have been the chairman of a Federal coordinating committee regarding water quality data. Federal and State Agencies are both represented on that.

The committee has repeatedly recommended that we develop a national water quality information system where the States have a part in the design of that system so that both the States and the Federal Government can use the system in order to run their programs. This has never been done.

The Federal Government continues to develop its own system for its own needs without consultation with the States.

MR. STEIN: Comments or questions?

Thank you very much.

At this point, I would like to call on Ohio.

7/15/70

Subject: Fish Kill
Allegheny River Pool, Dam #5
Allegheny County
Sampled June 17, 1970 by WATTS

On Wednesday afternoon June 17th Fred Jones of the Pittsburgh Press reported that he received telephone calls from several people in the Brackenridge area of a massive fish kill (even water turtles were in distress and surfacing) in the lower section of the Natrona Dam #5 pool of the Allegheny River.

That same evening and surmising that this condition was due to acid mine drainage discharge from the Conemaugh - Loyalhanna Reservoirs, I proceeded to sample the rivers and found at Leechburg that the Kiskiminetas Rivers shoreline indicated that the stream must have been 1-1/2 to 2 feet higher the previous day or two.

According to attached laboratory data of samples collected on Wednesday, June 17, the slug of acid water was found all the way down stream to the New Kensington Bridge. In other words, a pH of 3.6 was found in the Freeport to Watrona Dam #4 Pool and half way down in the next Acme Dam #3 Pool.

Again, Saturday's (June 20) samples indicated that this slug of acid water although being somewhat neutralized by the present downstream pools had already traversed midway into the Highland Park Dam #2 Pool, and by Sunday would be passing the Point into the Ohio River.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

cc: Comm. Staisey
Comm. Foerster
Frank Shean
Fred Jones
Robt. Bielo, Fish Commission
Dr. Charmbury - Mines Dept.
W. E. Guckert - Mines Dept.

ALLEGHENY RIVER DRAINAGE AREA
ALLEGHENY-KISKI RIVER
UPPER ALLEGHENY COUNTY AREA
SAMPLED JUNE 17, 1970 by WATTS

(1)

FISH KILLING

	77740 1 Allegheny River at Schenley Dam #5 above its confluence with Kiski River	77741 2 Kiskiminetas River below Schenley Dam #5	77742 3 Allegheny River below confluence Freeport Boat Wharf about 1 mile downstream	77743 4 Allegheny River Natrona Dam #4
pH	7.4	3.3	6.4	4.2
Alkalinity, total as $CaCO_3$	33.0	-	14.0	-
Alkalinity, (bicarb HCO_3) as $CaCO_3$	33.0	-	-	-
Free Mineral Acid Acidity	-	26.0	-	2.0
Total Acidity, due to acid & Fe-AL salts	-	100.0	12.0	36.0
Hardness, total as $CaCO_3$ (EDTA)	80.0	180.0	96.0	132.0
Iron, total Fe	1.1	8.8	1.3	3.2
Aluminum, AL	16.3	30.8	16.7	10.6
Manganese, Mn.	0.0	1.2	0.4	0.9
Chloride, CL^-	32.0	24.0	24.0	20.0
Phosphate, total PO_4	1.0	1.2	1.0	1.1
Sulphate, SO_4	54.4	244.8	79.2	151.2
Total Solids	149.0	435.0	157.0	265.0
Volatile Solids	32.0	172.0	27.0	51.0
Fixed Solids	117.0	263.0	130.0	214.0
Bacterial Count per 1.0 cc.	700	900	3100	1400
Coliforms per 1.0 cc.	100	0	0	0

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

ALLEGHENY RIVER DRAINAGE AREA
ALLEGHENY-KISKI RIVER
UPPER ALLEGHENY COUNTY AREA
SAMPLED JUNE 17, 1970 by WATTS

FISH KILLING	77744 5 Allegheny River at Tarentum Boat Wharf	77745 6 Allegheny River at New Kensington Bridge	77746 7 Allegheny River at Cheswick (Sand-Gravel Co.) above Acme Dam #3	77747 8 Allegheny River at Hulton Bridge below Acme Dam #3
pH	3.7	3.7	6.4	6.4
Alkalinity, total as $CaCO_3$	-	-	12.0	12.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	18.0	16.0	-	-
Total Acidity, due to acid & Fe-AL salts	72.0	74.0	8.0	8.0
Hardness, total as $CaCO_3$ (EDTA)	148.0	152.0	116.0	128.0
Iron, total Fe	3.6	3.4	0.4	0.3
Aluminum, AL	19.2	10.4	8.6	6.9
Manganese, Mn.	1.1	0.9	0.0	0.5
Chloride, CL	20.0	24.0	24.0	24.0
Phosphate, total PO_4	1.2	1.2	1.4	1.2
Sulphate, SO_4	152.0	77.6	62.0	76.8
Total Solids	254.0	291.0	238.0	184.0
Volatile Solids	121.0	85.0	35.0	28.0
Fixed Solids	133.0	200.0	203.0	156.0
Bacterial Count per 1.0 cc.	1400	1900	936,500	76,100
Coliforms per 1.0 cc.	0	0	0	0

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

ALLEGHENY RIVER DRAINAGE AREA
ALLEGHENY-KISKI RIVER
UPPER ALLEGHENY COUNTY AREA
SAMPLED SAT. JUNE 20, 1970 by WATTS

FISH KILLING	77748 ALLEGHENY RIVER NEW KENSINGTON BRIDGE	77749 ALLEGHENY RIVER CHESWICK (RIVER SAND & GRAVEL CO.) ABOVE DAM #3	77750 ALLEGHENY RIVER HULTON BRIDGE LEFT SIDE	77751 ALLEGHENY RIVER HULTON BRIDGE RIGHT SIDE
pH	5.8	5.8	5.8	5.6
Alkalinity, total as $CaCO_3$	6.0	8.0	6.0	6.0
Alkalinity, (bicarb HCO_3) as CO_3	-	-	-	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to acid & Fe-AL salts	10.0	6.0	12.0	12.0
Hardness, total as $CaCO_3$ (EDTA)	88.0	88.0	88.0	88.0
Iron, total Fe	3.2	2.3	2.5	3.6
Aluminum, AL	9.4	9.1	13.1	22.2
Manganese, Mn.	0.5	0.6	0.5	0.1
Chloride, CL	24.0	24.0	20.0	20.0
Phosphate, total PO_4	1.0	1.1	1.1	1.1
Sulphate, SO_4	86.0	84.0	85.0	86.0
Total Solids	242.0	215.0	247.0	212.0
Volatile Solids	41.0	36.0	35.0	42.0
Fixed Solids	201.0	179.0	212.0	170.0
Bacterial Count per 1.0 cc	5500.0	5500.0	5800.0	5600.0
Coliforms, per 1.0 cc.	0	0	0	0

(Signed: M. R. Watts)
M. R. WATTS
BUREAU OF TESTS

ALLEGHENY RIVER DRAINAGE AREA
ALLEGHENY-KISKI RIVER
UPPER ALLEGHENY COUNTY AREA
SAMPLED SAT. JUNE 20, 1970 by WATTS

FISH KILLING	77752 Allegheny River at Highland Park Bridge (above Dam #2)	77753 Allegheny River at 40th St. Bridge Millvale (above Dam #2)
pH	6.2	6.4
Alkalinity, total as $CaCO_3$	10.0	12.0
Alkalinity (bicarb HCO_5) as $CaCO_3$	-	-
Free Mineral Acid Acidity	-	-
Total Acidity, due to acid & Fe-AL salts	10.0	8.0
Hardness, total as $CaCO_3$ (EDTA)	88.0	92.0
Iron, total Fe	1.3	2.4
Aluminum, AL	19.7	16.8
Manganese, Mn.	0.4	0.6
Chloride, CL	20.0	24.0
Phosphate, total PO_4	1.1	1.1
Sulphate, SO_4	81.0	80.0
Total Solids	218.0	205.0
Volatile Solids	35.0	26.0
Fixed Solids	183.0	179.0
Bacterial Count per 1.0 cc.	4600.0	5700.0
Coliforms, per 1.0 cc.	0	0

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

ALLEGHENY RIVER WATERSHED
ALLEGHENY, CONEMAUGH, KISKI RIVERS
SAMPLED JULY 3, 1970 by WATTS

	Conemaugh River at Saltsburg	Loyalhanna Creek at Saltsburg	Kiskimenetas River at Avonmore	Kiskimenetas River at Leechburg
	77904	77905	77906	77907
pH	3.6	3.6	3.6	3.6
Alkalinity, total as $CaCO_3$	-	-	-	-
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	12.0	10.0	12.0	10.0
Acidity, total due to acid & Fe-AL Salts	68.0	62.0	70.0	84.0
Hardness, total as $CaCO_3$ (EDTA)	176.0	203.0	184.0	188.0
Iron, total Fe	2.3	8.2	1.6	3.5
Aluminum, AL	16.3	18.2	17.6	18.1
Manganese, Mn.	2.3	2.5	2.2	1.9
Chloride, CL.	28.0	20.0	20.0	20.0
Phosphate, total PO_4	0.7	0.7	0.6	0.5
Sulphate, SO_4	222.0	272.0	248.0	242.0
Total Solids	344.0	464.0	357.0	384.0
Volatile Solids	92.0	144.0	113.0	122.0
Fixed Solids	252.0	320.0	244.0	262.0
Bacterial count per 1.0 cc	70.	300.	13,800.	100.
Coliforms, per 1.0 cc	0.	0.	0.	0.

(Signed: M. R. Watts)

ALLEGHENY RIVER WATERSHED
ALLEGHENY-CONEMAUGH-KISKI RIVERS
SAMPLED JULY 3, 1970 by WATTS

	Allegheny River Dam #5 at Schenley above Kiski River confluence	Allegheny River at Tarentum Boat Wharf
	77908	77909
pH	7.2	5.4
Alkalinity, total as $CaCO_3$	34.0	10.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	34.0	-
Free Mineral Acid Acidity	-	-
Acidity, total due to acid & Fe-AL salts	-	8.0
Hardness, total as $CaCO_3$ (EDTA)	112.0	124.0
Iron, total Fe	0.7	0.5
Aluminum, AL	4.1	6.7
Manganese, Mn.	0.0	1.2
Chloride, CL	24.0	24.0
Phosphate, total PO_4	0.6	0.6
Sulphate, SO_4	99.0	164.0
Total Solids	204.0	246.0
Volatile Solids	58.0	31.0
Fixed Solids	146.0	215.0
Bacterial count per 1.0 cc	2100.	2400.
Coliforms, per 1.0 cc.	10.	0.

(Signed: M. R. Watts)

December 8, 1970

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

Attached data hereto, resulted from a Sanitary Survey of the Monongahela River Drainage Basin made on November 20-21, 1970; whose purpose was to determine the extent of improvement in quality of water as flowing into the Commonwealth from the adjoining states of Maryland and West Virginia.

Twenty-one samples were collected and analyzed of the river, including several major tributaries downstream to the mouth of the Monongahela River. Beginning at Point Marion, Penna., where the Cheat River enters from Maryland and the Monongahela River from West Virginia, the pH values were 5.5 that indicate low alkalinity and both convey mine drainage.

Progressing downstream, the pH values rise towards the pH 7.0 range, which means improvement due to treatment of acid mine drainage from present active operations. Even, Whiteley Creek is now alkaline.

Oil-grease pollution was noticeable along the shores and banks of the river entering Allegheny County downstream to its confluence with the Ohio River, all due to inadequate or no oil separator equipment at some of the plants operating along this stretch of the river.

For comparison purposes, an additional list of pH values and stream flow discharges per second at some of the sampling stations as reported by the U.S. Engineers to the 78th Congress, August 27, 1943, House Document on Pollution Control in the Ohio River Basin, which show low pH values, all due to discharge of untreated mine drainage from deep mine operations thirty years ago.

Today, the practice of dilution Engineering by impounding acid laden waters in coal producing drainage areas is certainly not the answer towards improving water quality. What is needed, is to proceed to the headwaters of the stream or tributary that is contaminated, treat it, then impoundment it, if necessary, for a water supply, recreation and navigation.

(Signed: M. R. Watts)
M. R. Watts,
Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

(1)

	#1 Cheat River at Point Marion	#2 Monongahela River at Point Marion	#3 Dunkard Creek at Rt. 88	#4 Whiteley Creek at Rt. 88
pH	5.6	5.6	7.0	7.6
Alkalinity, total as $CaCO_3$ p.p.m.	6.0	8.0	50.0	96.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	—	—	50.0	96.0
Alkalinity, (carb CO_3) as $CaCO_3$	—	—	—	—
Free Mineral Acid Acidity	—	—	—	—
Total Acidity due to acid and/or Fe-Al salts	10.0	10.0	—	—
Hardness, total as CaCO3 (EDTA)	44.0	92.0	136.0	140.0
Iron, total Fe	1.0	2.1	1.8	1.1
Aluminum, Al	0.8	3.3	1.2	6.7
Manganese, Mn	0.0	0.1	0.0	0.0
Chloride, Cl	8.0	8.0	12.0	12.0
Phosphate, total PO_4	0.8	1.85	0.7	1.6
Sulphate, SO_4	21.0	95.0	135.0	88.0
Nitrate, NO_3	1.41	1.85	0.97	1.58
Total Solids	95.0	221.0	286.0	291.0
Volatile Solids	16.0	45.0	80.0	64.0
Fixed Solids	79.0	176.0	206.0	227.0
Dissolved Oxygen (D.O.)	10.4	11.6	10.8	12.8
% Oxygen Saturation	92.0	102.6	86.4	104.9
5-Day B. O. D.	0.8	2.0	3.2	2.4
Condition of water according to British B.O.D. classification of streams.	Very clean.	Clean.	Doubtful.	Doubtful.
Bacterial count per 1.0CC	47,000.0	2,000.0	1,000.0	36,000.0
Coliforms per 1.0CC	0.0	0.0	100.0	16,000.0

(Signed: M. R. Watts)
M. R. Watts,
Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

	#5 Monongahela River Rt. 21 to Masontown	#6 Ten Mile Creek near Clarkville Rt. 88	#7 Monongahela River at Brownsville	#8 Monongahela River at Belle Vernon
pH	5.8	8.2	6.4	6.6
Alkalinity, total as $CaCO_3$ p.p.m.	10.0	116.0	12.0	14.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	—	116.0	—	—
alkalinity, (carb CO_3) as $CaCO_3$	—	—	—	—
Free Mineral Acid Acidity	—	—	—	—
Total Acidity due to acid and/or Fe-Al salts	12.0	—	6.0	4.0
Hardness, total as $CaCO_3$ (EDTA)	76.0	188.0	68.0	84.0
Iron, total Fe	1.4	0.8	1.2	2.4
Aluminum, Al	1.6	3.4	1.8	5.4
Manganese, Mn	0.0	0.0	0.0	0.0
Chloride, Cl	8.0	16.0	8.0	4.0
Phosphate, total PO_4	0.9	1.0	0.8	0.9
Sulphate, SO_4	76.0	128.0	77.0	82.0
Nitrate, NO_3	2.20	2.46	1.85	1.67
Total Solids	150.0	417.0	163.0	164.0
Volatile Solids	18.0	65.0	12.0	11.0
Fixed Solids	132.0	352.0	151.0	153.0
Dissolved Oxygen (D.O.)	12.0	11.4	11.0	10.0
% Oxygen Saturation	103.4	93.4	95.0	88.5
5-Day B.O.D.	1.8	2.0	0.8	2.0
Condition of water according to British B.O.D. classification of streams	Clean.	Clean.	Very Clean.	Clean.
Bacterial count per 1.0CC	0.0	163,000.0	12,000.0	52,000.0
Coliforms per 1.0CC	0.0	12,000.0	2,000.0	0.0

(Signed: M. R. Watts)
M. R. Watts,
Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

	#9 Pidgeon Creek above Monongahela Rt. 837	#10 Monongahela River at Monongahela	#11 Peters Creek at Rt. 51 above Clairton	#12 Peters Creek below Clairton Sewage Plant
pH	8.0	6.4	7.8	7.4
Alkalinity, total as $CaCO_3$ p.p.m.	204.0	10.0	104.0	60.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	204.0	—	104.0	—
Alkalinity, (carb CO_3) as $CaCO_3$	—	—	—	—
Free Mineral Acid Acidity	—	—	—	—
Total Acidity due to acid and/or Fe-Al salts	—	12.0	—	14.0
Hardness, total as $CaCO_3$ (EDTA)	280.0	68.0	420.0	296.0
Iron, total Fe	2.1	0.6	1.0	2.3
Aluminum, Al	5.1	3.6	11.6	28.3
Manganese, Mn	0.0	0.0	0.0	0.0
Chloride, Cl	16.0	8.0	20.0	20.0
Phosphate, total PO_4	1.4	1.0	3.6	3.1
Sulphate, SO_4	270.0	110.0	361.0	287.0
Nitrate, NO_3	4.14	2.11	15.8	11.4
Total Solids	619.0	146.0	782.0	622.0
Volatile Solids	151.0	12.0	121.0	95.0
Fixed Solids	468.0	134.0	661.0	527.0
Dissolved Oxygen D.O.	10.4	10.4	10.4	8.6
% Oxygen Saturation	90.0	93.7	92.0	84.3
5-Day B.O.D.	0.8	2.0	0.8	9.2
Condition of water according to British B.O.D. classification of streams	Very clean.	Clean.	Very Clean.	Bad.
Bacterial count per 1.0CC	58,000.0	58,000.0	64,000.0	340,000.0
Coliforms per 1.0CC	8,000.0	10,000.0	12,000.0	68,000.0

(Signed: M. R. Watts)
M. R. Watts,
Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

	#13 Monongahela River at Elizabeth	#14 Monongahela River Glassport Bridge (below Clairton)	#15 Monongahela River at Dravesburg	#16 Youghiogheny River at McKeesport
pH	6.6	6.6	6.4	6.6
Alkalinity, total as $CaCO_3$ p.p.m.	14.0	12.0	10.0	26.0
Alkalinity, (bicarb HCO_3 as $CaCO_3$	—	—	—	—
Alkalinity, (carb CO_3) as $CaCO_3$	—	—	—	—
Free Mineral Acid Acidity	—	—	—	—
Total Acidity due to acid and/or Fe-Al salts	6.0	8.0	10.0	4.0
Hardness, total as $CaCO_3$ (EDTA)	68.0	84.0	80.0	128.0
Iron, total Fe	0.8	0.9	1.3	1.8
Aluminum, Al	2.8	5.7	25.1	0.6
Mangenese, Mn	0.0	0.0	0.0	0.1
Chloride, Cl	8.0	8.0	8.0	8.0
Phosphate, total PO_4	1.4	1.0	1.0	0.9
Sulphate, SO_4	84.0	100.0	96.0	166.0
Nitrate, NO_3	2.29	2.38	2.37	3.26
Total Solids	161.0	171.0	171.0	223.0
Volatile Solids	19.0	11.0	8.0	9.0
Fixed Solids	142.0	160.0	163.0	214.0
Dissolved Oxygen D.O.	9.6	9.8	9.8	11.6
% Oxygen Saturation	88.8	90.8	90.8	107.4
5-Day B.O.D.	0.8	1.6	2.0	0.4
Condition of water according to British B.O.D. classification of streams	Very clean.	Clean.	Clean.	Very Clean.
Bacterial count per 1.0CC	19,000.0	92,000.0	532,000.0	111,000.0
Coliforms per 1.0CC	0.0	16,000.0	4,000.0	4,000.0

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Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

	#17 Monongahela River at McKeesport-Duquesne Bridge	#18 Turtle Creek near its confluence	#19 Monongahela River at Rankin Bridge	#20 Monongahela River at Glenwood Bridge
pH	6.4	7.0	6.4	6.6
Alkalinity, total as $CaCO_3$ p.p.m	14.0	56.0	16.0	20.0
Alkalinity, (bicarb HCO_3)as $CaCO_3$	—	—	—	—
Alkalinity, (carb CO_3) as $CaCO_3$	—	—	—	—
Free Mineral Acid Acidity	—	—	—	—
Total Acidity due to acid and/or Fe-Al salts	4.0	—	8.0	6.0
Hardness, total as $CaCO_3$ (EDTA)	84.0	328.0	88.0	84.0
Iron, total Fe	0.9	2.5	0.7	0.5
Aluminum, Al	0.9	13.1	2.3	1.9
Manganese, Mn	0.1	0.8	0.1	0.1
Chloride, Cl	8.0	20.0	8.0	8.0
Phosphate, total PO_4	1.1	1.5	1.0	1.1
Sulphate, SO_4	114.0	326.0	120.0	114.0
Nitrate, NO_3	2.46	9.70	2.55	2.90
Total Solids	242.0	701.0	176.0	216.0
Volatile Solids	13.0	74.0	19.0	12.0
Fixed Solids	229.0	627.0	157.0	204.0
Dissolved Oxygen D.O.	11.0	9.6	10.4	10.4
% Oxygen Saturation	97.3	86.5	92.0	93.7
5-Day B.O.D.	1.6	2.2	2.0	2.2
Condition of water according to British B.O.D. classification of streams	Clean.	Doubtful.	Clean.	Doubtful.
Bacterial count per 1.0CC	43,000.0	265,000.0	131,000.0	158,000.0
Coliforms per 1.0CC	4,000.0	48,000.0	15,000.0	28,000.0

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Bureau of Tests

Monongahela River Sanitary Survey
Sampled Nov. 20-21, 1970, by Watts-Soltis

	#21 at 10th St. South Side, Pgh.
pH	6.8
Alkalinity, total as $CaCO_3$ p.p.m.	14.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	---
Alkalinity, (carb CO_3) as $CaCO_3$	---
Free Mineral Acid Acidity	---
Total acidity due to acid and/or Fe-Al salts	2.0
Hardness, total as $CaCO_3$ (EDTA)	76.0
Iron, total Fe	1.3
Aluminum, Al	1.1
Manganese, Mn	0.1
Chloride, Cl	8.0
Phosphate, total PO4	0.0
Sulphate, SO_4	107.0
Nitrate, NO_3	2.64
Total Solids	191.0
Volatile Solids	11.0
Fixed Solids	180.0
Dissolved Oxygen D.O.	9.8
% Oxygen Saturation	88.3
5-Day B.O.D.	0.8
Condition of water according to British B.O.D. classification of streams	Very clean.
Bacterial count per 1.0CC	142,000.0
Coliforms per 1.0CC	7,000.0

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Data listed below taken from U.S. Engineers Report to the 78th Congress, August 27, 1943, House Document 266 on Pollution Control in the Ohio River Basin.

	Date	Average Discharge cu. ft./sec.	pH
Monongahela River, Dam #8, Point Marion, Penna.	May 31, 1940	38,000.	5.0
	June 10, 1940	3,250.	3.9
	June 22, 1940	6,790.	5.1
	August 19, 1940	450.	3.3
	August 27, 1940	450.	3.2
	September 4, 1940	1,010.	3.5
	September 13, 1940	845.	3.2
	September 17, 1940	845.	3.4
	September 24, 1940	340.	3.5
	October 2, 1940	1,770.	4.3
	October 8, 1940	1,370.	3.8
	October 17, 1940	630.	3.5
	October 22, 1940	630.	3.5
	October 30, 1940	1,050.	3.7
	November 4, 1940	4,140.	4.6
	November 12, 1940	1,830.	4.1
	November 20, 1940	2,110.	4.3
	November 26, 1940	4,190	4.2
	December 5, 1940	4,000.	4.1
	December 9, 1940	4,500.	4.1
Cheat River, at mouth, Point Marion, Penna.	May 31, 1940	35,300.	6.4
	June 10, 1940	3,730	3.9
	June 22, 1940	1,220.	6.1
Monongahela River, Dam #5, Brownsville	August 19, 1940	730.	3.7
	August 27, 1940	730.	3.5
	September 4, 1940	2,820.	5.0
	September 13, 1940	1,700.	4.1
	September 17, 1940	1,590	4.0
	September 24, 1940	1,590.	3.6
	October 2, 1940	2,570.	4.4
	October 8, 1940	2,210..	3.9
	October 17, 1940	1,150.	3.9
Monongahela River, Dam #5, Brownsville	October 22, 1940	1,600.	3.8
	October 30, 1940	2,100.	3.8
	November 4, 1940	9,760.	4.7
	November 12, 1940	2,980.	6.8
	November 20, 1940	3,850.	6.5
	November 26, 1940	9,300.	4.3
	December 5, 1940	5,550.	5.7
	December 9, 1940	5,980.	6.2
Monongahela River, Dam #4, Charleroi, Penna.	August 19, 1940	760.	3.3
	August 27, 1940	1,910.	3.3
	September 4, 1940	2,900.	6.3
	September 13, 1940	1,680.	3.9
	September 17, 1940	1,380.	3.7
	September 24, 1940	900.	3.7
	October 2, 1940	2,550.	3.8
	October 8, 1940	2,220.	3.6
	October 17, 1940	1,010.	3.5
	October 22, 1940	1,650.	3.5
	October 30. 1940	2,150.	3.5

	Date	Average Discharge cu. ft./sec.	pH
Monongahela River, Dam #4, Charleroi, Penna.	November 4, 1940	11,600.	4.6
	November 12, 1940	2,570.	6.1
	November 20, 1940	4,650.	4.3
	November 26, 1940	10,600.	4.1
	December 5, 1940	5,910.	5.7
	December 9, 1940	6,040.	4.6
Monongahela River, Dam #3, McKeesport, Penna.	September 25, 1940	2,100.	3.7
	October 4, 1940	2,200.	3.7
	October 9, 1940	2,230.	3.5
	October 18, 1940	1,900.	3.5
	October 23, 1940	1,900.	3.5
	November 1, 1940	8,360.	3.4
	November 6, 1940	8,200.	6.2
	November 13, 1940	3,250.	4.6
	November 27, 1940	26,600.	5.5
	December 4, 1940	13,600.	6.2
	December 10, 1940	21,100.	5.5
Youghiogheny River, at mouth, McKeesport, Penna.	August 19, 1940	425.	3.5
	August 27, 1940	3,200.	3.5
	September 5, 1940	1,050	4.1
	September 16, 1940	875.	4.0
	September 25, 1940	490.	3.4
	October 4, 1940	883.	3.1
	October 9, 1940	610.	3.3
	October 18, 1940	530.	3.6
	October 23, 1940	485.	4.0
	November 1, 1940	2,550.	4.6
	November 6, 1940	2,800.	6.9
	November 13, 1940	1,480.	4.5
	November 27, 1940	5,880.	6.2
	December 4, 1940	3,420.	6.2
	December 10, 1940	3,830.	6.2
Turtle Creek, above mouth to Monongahela River.	September 6, 1940	56.	2.9
	October 28, 1940	34.	3.2
	November 28, 1940	321.	6.2
Monongahela River, at mouth, Pittsburgh, Penna.	September 16, 1940	1,650.	5.5
	September 25, 1940	2,620.	3.8
	October 4, 1940	3,090.	3.7
	October 9, 1940	2,840.	4.4
	October 18, 1940	2,450.	3.9
	October 23, 1940	2,450.	3.9
	November 1, 1940	12,400.	3.5
	November 6, 1940	11,300.	6.6
	November 13, 1940	4,800.	4.3
	November 27, 1940	29,500.	6.1
	December 4, 1940	17,600.	6.3
	December 10, 1940	25,900.	6.3

9005

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FISH KILL

ALLEGHENY RIVER WATERSHED

SAMPLED 7/16/71 by WATTS

Attached data of samples collected on Thursday, July 16th, after hearing of reported Fish Kill in the Natrona-Brackenridge-Tarentum area of the Allegheny River. Dead fish were observed during sampling that evening in the Natrona Dam #4 Pool, and New Kensington-Cheswick areas of Dam #3 Pool.

The slug of acid water had already traversed down into the Hulton area of the upper Dam #2 Pool, having a pH of 4.0. It takes approximately 5- 7 days for the releases of Conemaugh-Loyalhanna Reservoir to reach the Freeport-Natrona #4 Pool.

There was a heavy rainfall on Saturday - Sunday July 10 - 11 in the Kiski River Watershed. It is assumed that stream flow records will show that Reservoir releases of acid waters amounting to 15%-20% of the total flow of the Allegheny River resulted in the Fish Kill.

(Signed: M. R. Watts)
M. R. WATTS

MRW/e

FISH KILL

ALLEGHENY RIVER WATERSHED

SAMPLED 7/16/71 by WATTS

	#1 KISKI RIVER AT LEECHBURG	#2 ALLEGHENY RIVER ABOVE FREEPORT DAM #5	#3 ALLEGHENY RIVER NATRONA DAM #4 POOL	#4 ALLEGHENY RIVER NEW KENSINGTON DAM #3 POOL
pH	3.0	7.6	6.0	5.4
Alkalinity, total as $CaCO_3$ ppm	-	36.0	12.0	6.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	36.0	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	26.0	-	-	-
Total Acidity, due to or/and acid & Fe-AL salts	140.0	-	4.0	16.0
Hardness, total as $CaCO_3$ (EDTA)	244.0	76.0	136.0	130.0
Iron, total Fe.	5.2	0.25	0.1	0.1
Aluminum, AL	3.8	2.15	1.7	1.7
Manganese, Mn.	2.6	0.1	1.4	1.3
Chloride, CL	14.0	10.0	4.0	4.0
Phosphate, PO_4	1.3	0.5	0.3	0.3
Sulphate, SO_4	374.0	164.4	88.8	192.8
Nitrate, NO_3	4.4	5.3	5.2	4.0
Amm. N.	2.2	0.5	0.9	1.1
Total Solids (dissolved-suspended)	646.	207.	311.	359.
Volatile Solids	286.	116.	190.	188.
Fixed Solids	360.	91.	121.	171.
Suspended Solids				
Remarks:			Dead Fish observed	Dead fish observed

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FISH KILL

ALLEGHENY COUNTY WATERSHED

SAMPLED 7/16/71 by WATTS

	#5 ALLEGHENY RIVER AT CHESWICK (RIVER SAND & GRAVEL CO.) DAM #3 POOL	#6 ALLEGHENY RIVER AT HULTON (RIGHT SIDE) (DOWNSTREAM) (DAM #2 POOL)	#7 ALLEGHENY RIVER AT HULTON LEFT SIDE (DOWNSTREAM) (DAM #2 POOL)	#8 ALLEGHENY RIVER AT ASPINWALL (DAM #2 POOL)
pH	4.0	5.2	4.0	7.6
Alkalinity, total as $CaCO_3$ ppm	-	6.0	-	16.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	16.0
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	2.0	-	4.0	-
Total Acidity, due to or/and acid & Fe-AL salts	42.0	22.0	42.0	-
Hardness, total as $CaCO_3$ (EDTA)	164.0	160.0	163.0	140.0
Iron, total Fe.	0.8	0.9	1.1	0.2
Aluminum, AL	23.8	2.1	4.9	6.4
Manganese, Mn.	1.4	1.2	1.35	0.6
Chloride, CL	6.0	12.0	10.0	12.0
Phosphate, PO_4	0.4	1.3	2.1	0.9
Sulphate, $SO4$	359.2	171.6	134.0	264.4
Nitrate, $NO3$	4.8	4.0	4.4	4.4
Amm. N.	1.3	1.2	1.3	0.8
Total Solids (dissolved-suspended)	418.	427.	430.	345.
Volatile Solids	218.	184.	205.	156.
Fixed Solids	200.	243.	225.	189.
Suspended Solids				
Remarks:	Dead Fish observed			

(Signed: M. R. Watts
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CONEMAUGH RIVER WATERSHED
TRIP BY STATE CONSERVATION COMMITTEE
JULY 23 - 24, 1970

	STONEY CREEK ABOVE JOHNSTOWN	LITTLE CONEMAUGH RIVER ABOVE JOHNSTOWN	CONEMAUGH RIVER LEFT DOWNSTREAM ACROSS STEEL PLANT IN JOHNSTOWN	CONEMAUGH RIVER RIGHT DOWNSTREAM ALONG STEEL PLANT IN JOHNSTOWN
	78247	78248	78249	78250
pH	3.6	3.0	3.5	3.8
Alkalinity, total as $CaCO_3$	-	-	-	-
Alkalinity, (bicarb HCO_3 as $CaCO_3$	-	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	6.0	60.0	8.0	8.0
Total Acidity, due to acid & Fe-AL salts	56.0	196.0	70.0	226.0
Hardness total as $CaCO_3$ (EDTA)	216.0	420.0	240.0	224.0
Iron, total Fe.	3.0	12.6	5.5	60.9
Aluminum, AL	17.4	36.6	23.9	26.1
Manganese, Mn.	1.6	4.2	1.7	1.5
Chloride, CL	20.0	24.0	24.0	16.0
Phosphate, total PO_4	0.9	1.0	1.6	0.3
Sulphate, SO_4	271.0	620.0	379.0	524.0
Total Solids	398.0	970.0	525.0	716.0
Volatile Solids	115.0	515.0	153.0	209.0
Fixed Solids	283.0	455.0	372.0	507.0
Copper	-	-	-	0.16
Cyanide	-	-	-	0.17

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CONEMAUGH RIVER WATERSHED
TRIP BY STATE CONSERVATION COMMITTEE
JULY 23 - 24, 1970

	CONEMAUGH RIVER AT SEWARD BELOW POWERPLANT	BLACK LICK CREEK NEAR HEADWATERS OF CONEMAUGH RESERVOIR	STEWART RUN NEAR HEADWATERS OF CONEMAUGH RESERVOIR	CONEMAUGH RESERVOIR
	78251	78252	78253	78254
pH	3.6	3.0	3.6	3.4
Alkalinity, total as $CaCO_3$	-	-	-	-
Alkalinity (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity (carb CO_3) as $Ca\ CO_3$	-	-	-	-
Free Mineral Acid Acidity	16.0	114.0	22.0	26.0
Total Acidity, due to acid & Fe-AL salts	78.0	360.0	130.0	106.0
Hardness, total as $CaCO_3$ (EDTA)	280.0	300.0	388.0	248.0
Iron, total Fe	6.3	28.8	1.6	9.6
Aluminum, AL	18.9	34.8	25.4	40.2
Manganese, Mn.	1.8	2.5	4.4	2.4
Chloride, CL	24.0	28.0	40.0	20.0
Phosphate, total PO_4	0.7	0.8	0.5	0.7
Sulphate, SO_4	758.0	692.0	549.0	357.0
Total Solids	491.0	1067.0	791.0	444.0
Volatile Solids	184.0	556.0	223.0	85.0
Fixed Solids	307.0	511.0	568.0	359.0

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CONEMAUGH RIVER WATERSHED
TRIP BY STATE CONSERVATION COMMITTEE
JULY 23 - 24, 1970

	LOYALHANNA CREEK AT SALTSBURG	CONEMAUGH RIVER AT SALTSBURG	CONEMAUGH RIVER AT APOLLO	BARNES-TUCKER MINE #20 RAW WASTE
	78255	78256	78257	78258
pH	3.6	3.6	3.6	3.2
Alkalinity, total as $CaCO_3$	-	-	-	-
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	14.0	32.0	32.0	128.0
Total Acidity, due to acid & Fe-AL salts	56.0	114.0	110.0	296.0
Hardness, total as $CaCO_3$ (EDTA)	292.0	240.0	252.0	560.0
Iron, total Fe	3.7	4.9	3.6	65.0
Aluminum, AL	15.5	28.0	20.0	19.0
Manganese, Mn.	2.1	2.5	2.5	1.2
Chloride, CL	24.0	20.0	28.0	16.0
Phosphate, total PO_4	0.6	0.9	0.5	0.8
Sulphate, SO_4	387.0	375.0	356.0	709.0
Total Solids	548.0	574.0	591.0	878.0
Volatile Solids	156.0	190.0	175.0	205.0
Fixed Solids	392.0	384.0	416.0	673.0

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CONEMAUGH RIVER WATERSHED
TRIP BY STATE CONSERVATION COMMITTEE
JULY 23 - 24, 1970

	BARNES-TUCKER MINE #20 TREATED	STERLING #6 MINE RAW WASTE	BARNES-TUCKER MINE #15 RAW WASTE	BARNES-TUCKER MINE #15 TREATED
	78259	78260	78261	78262
pH	10.5	3.0	3.0	10.5
Alkalinity, total As $CaCO_3$	380.0	-	-	172.0
Alkalinity (bicarb HCO_3) as $CaCO_3$	40.0	-	-	64.0
Alkalinity (carb CO_3) as $CaCO_3$	340.0	-	-	108.0
Free Mineral Acid Acidity	-	500.0	450.0	-
Total Acidity, due to acid & Fe-AL salts	-	1300.0	4000.0	-
Hardness, total as $CaCO_3$ (EDTA)	1032.0	336.0	780.0	1840.0
Iron, total Fe	2.2	78.3	67.2	29.7
Aluminum, AL	18.8	237.0	3500.0	29.1
Manganese, Mn.	0.0	2.6	2.0	0.0
Chloride, CL	28.0	24.0	24.0	16.0
Phosphate, total PO_4	0.7	0.6	2.6	1.9
Sulphate, SO_4	987.0	2083.0	10,262.0	2700.0
Total Solids	1913.0	3467.0	21,533.0	4023.0
Volatile Solids	25.0	1642.0	11,978.0	301.0
Fixed Solids	1888.0	1825.0	9555.0	3722.0

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CONEMAUGH RIVER WATERSHED
TRIP BY STATE CONSERVATION COMMITTEE
JULY 23 - 24, 1970

	BETHLEHEM STEEL BROOKDALE #77 MINE
	78263
pH	7.4
Alkalinity, total as $CaCO_3$	24.0
Alkalinity (bicarb HCO_3) as $CaCO_3$	24.0
Alkalinity (carb CO_3) as $CaCO_3$	-
Free Mineral Acid Acidity	-
Total Acidity, due to acid & Fe-AL salts	-
Hardness, total as $CaCO_3$ (EDTA)	1020.0
Iron, total Fe.	1.3
Aluminum, AL,	10.7
Manganese, Mn.	0.0
Chloride, CL	12.0
Phosphate, total PO_4	0.5
Sulphate, SO_4	1459.0
Total Solids	2347.0
Volatile Solids	246.0
Fixed Solids	2101.0

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LOYALHANNA CREEK SURVEY
SAMPLED 11/14/70 by WATTS

	1 Loyalhanna Creek above Latrobe (Kingston)	2 Loyalhanna Creek at Latrobe	3 Crabtree Creek below Crabtree & Spoil Piles	4 Loyalhanna Creek at New Alexandria Rt. 22
pH	6.8	6.4	5.6	6.0
Alkalinity, total as $CaCO_3$ p.p.m.	26.0	24.0	60.0	18.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	26.0	-	-	-
Alkalinity (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to acid & Fe-AL salts	-	4.0	130.0	12.0
Hardness, total as $CaCO_3$ (EDTA)	44.0	80.0	680.0	108.0
Iron, total Fe.	0.8	6.5	102.0	9.5
Aluminum, AL.	3.4	3.1	4.3	3.1
Manganese, Mn.	0.0	0.0	2.0	0.1
Chloride, CL.	8.0	8.0	8.0	8.0
Phosphate, total PO_4	3.5	4.6	3.4	3.2
Sulphate, SO_4	43.0	67.0	967.0	141.0
Nitrate, NO_3	2.46	2.64	0.79	2.55
Total Solids	107.0	117.0	1608.0	111.0
Volatile Solids	18.0	12.0	180.0	12.0
Fixed Solids	89.0	105.0	1428.0	99.0
Condition of Sample	Clean up of mine drainage in the Crabtree and Latrobe areas would greatly improve quality of water in Loyalhanna Reservoir.			
Bact Count per 1.0 cc.				
Coliforms per 1.0 cc.				

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

LOYALHANNA CREEK SURVEY
SAMPLED 11/14/70 by WATTS

	5 Loyalhanna Creek at Saltsburg	6 Conemaugh River at Saltsburg	7 Kiski River at Avonmore
pH	5.6	4.6	4.8
Alkalinity, total as $CaCO_3$ p.p.m.	8.0	2.0	4.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-
Free Mineral Acid Acidity	-	-	-
Total Acidity, due to acid & Fe-AL salts	18.0	46.0	40.0
Hardness, total as $CaCO_3$ (EDTA)	152.0	112.0	132.0
Iron, total Fe.	9.0	8.5	7.5
Aluminum, AL	0.6	4.1	5.7
Manganese, Mn.	0.8	1.1	1.1
Chloride, CL	8.0	8.0	8.0
Phosphate, total PO_4	3.3	4.3	2.3
Sulphate, SO_4	151.0	142.0	207.0
Nitrate, NO_3	2.28	3.26	2.90
Total Solids	291.0	271.0	274.0
Volatile Solids	15.0	28.0	23.0
Fixed Solids	276.0	243.0	251.0

Condition of Sample

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

Comments relative to proposed Reservoirs in the Youghiogheny River Watershed.

11/2/70

About 30 years ago, a report of a study was made by the Chief of Engineers, U.S. Army, May 4, 1943, on a Survey of the Ohio River and its tributaries for Pollution Control, as authorized by Section 5 of the Rivers and Harbors Act approved August 26, 1937. This report was submitted to the 78th Congress and is known as House Document 266.

According to Part I, page 38, paragraph 113 of this report and entitled Reservoirs. "Reservoirs provided for flood control purposes only, have a slight effect on steam water quality. Their major purpose is the rearrangement of the natural regimen of discharge during periods of extremely high flow. At high water oxygen depletion and nuisance conditions, resulting from sewage and pollution by industrial wastes discharges usually are not serious. However, the provision of low flow control as a supplementary feature of storage reservoirs provided for flood control usually has a beneficial effect on the sanitary conditions of downstream reaches."

Since these Reservoirs along the headwaters and bituminous coal producing areas in the Ohio River Basin provide for flood control purposes only, and have no effect upon improving the water quality, then, that is not enough. Today, people are interested in upgrading the quality for water supplies, recreation, fish and wildlife enhancement.

As to water quality, it is desirable to have not less than 15 to 20 parts per million alkalinity in stream waters. According to Dr. Ellis of the U.S. Fisheries Bureau finding, the water of flowing streams tends to range from pH 6.7 to pH 8.6, where unpolluted by municipal or industrial wastes. When more acid than pH 6.7, or more alkaline than 8.6, as a result of pollution, he states that the buffer and carbonate systems are usually so disturbed that conditions harmful to fish are generally found. This natural range is, therefore, the most desirable one for maintenance of healthy fish life in streams. He further states that pH 4.0 or less is definitely lethal to all fish.

A pH of 6.5 to 8.6 is normal for unpolluted streams, favorable for fish life and suitable for water supplies. A pH of 5.5 to 6.5 indicates moderate acid pollution tolerable to fish life and suitable for water supplies prior to treatment. A pH of 4.0 to 5.5 indicates moderately heavy acid pollution, detrimental to fish life, fairly suitable for water supplies prior to treatment. A pH less than 4.0 indicates heavy acid pollution, lethal to fish life and unfavorable for water supplies prior to treatment.

As to Dissolved Oxygen - Water contains oxygen, the amount depending on many conditions. In unpolluted water, the saturation content of dissolved oxygen depends on the temperature; it ranges from about 14.6 mg./l. at 0°C. downward to about 7.6 mg./l. at 38° C. In both cases, the percent of saturation is 100 when sampled and found at these temperatures. Organic matter undergoing decomposition uses up the oxygen in the water, so will some inorganic chemicals. As the water flows in a stream, reaeration takes place, oxygen being taken from the air. We know that when dissolved oxygen saturation drops to 57% due to pollution, one can expect aquatic life mortality. Organic pollution is measured by the 5-day Biochemical Oxygen Demand. The British Royal Commission's classification of rivers and effluents according to this 5-day Biochemical Oxygen Demand is as follows: —

Very Clean	1.0 p.p.m. B.O.D. or less.
Clean	1.0 to 2.0 p.p.m. B.O.D. or less.
Doubtful	3.0 to 5.0 p.p.m. B.O.D. or less.
Bad	10.0 p.p.m. B.O.D. or more.

Public Meeting for Proposed Construction of Reservoirs for the Youghiogheny River Basin

11/3/70

The U.S. Engineers of the Pittsburgh District are holding a public meeting in McKeesport on Monday, November 9, 1970, at 10 A.M. in the Meeting Room of the First United Methodist Church, Cornell Street & Versailles Avenue. It is for the purpose of exchanging views, comments, and suggestions relative to a study and construction of proposed additional Reservoirs in the Youghiogheny River Basin.

We should be interested in improving the water quality of the Youghiogheny River since it enters Allegheny County in the Vicinity of Suttersville, then thru Versailles and McKeesport, into the Monongahela River. Many people do not know that back in 1910, the Youghiogheny was the most acid, then the Monongahela, and Allegheny was least acid of the three. Also, in 1916 the city of McKeesport, because of the high acidity of the Youghiogheny River, changed to the Monongahela River for its source of a raw water supply.

Back in 1940 and shortly after the great flood of 1936, the U.S. Engineers submitted a study report to the 78th Congress concerning Pollution Conditions in the Ohio River Basin, which also included the construction of Flood Control Reservoirs. At that time they found acid conditions in the headwaters of the Youghiogheny River Basin, especially in the Casselman River watershed with a pH of 3.0 to 3.5.

Our recent survey of October 24th indicates an improvement in water quality in the Youghiogheny River Basin which is primarily due to ceasing of deep mine operations and restoration program in the Casselman River watershed. However, you still have threats of breaking-out of underground mine water impoundments that may result from stripping operations in the Casselman River watershed.

Quoting from this U.S. Engineers report of 1940 - "Since mine sealing does not eliminate all acid reaching the streams from mines, low flow control is desirable for dilution of the acid during relatively dry periods. Low flow control may be secured from existing reservoirs and should be considered in all new reservoir projects. This program will not result in a water quality suitable for the many possible uses of the streams. Specifically, it does not assure satisfactory conditions for the propagation and support of aquatic life or for recreation."

Pollution abatement will never be achieved by such low flow augmentation laden wth acid waters and coupled with the present practice of dilution engineering. Thirty years ago, we had the so-called accidental industrial fish-kills. Today, we have accidental flood control releases that cause fish-kills downstream. Is this progress in water pollution abatement?

We recommend, that all future construction of multi-purpose Flood Control Reservoirs constructed by the U.S. Engineers, should also be their responsibility in treatment of such polluted waters prior to their impoundment.

(Signed: M. R. Watts)
M. R. Watts,
Bureau of Tests

TABLE II
YOUGHIOGHENY RIVER SANITARY SURVEY
SAMPLED OCT. 24, 1970 by WATTS-SOLTIS

	#1 Casselman R. below Salisbury	#2-A Coxes Creek above Rockwood	2-B Casselman R at Rockwood	3 Casselman R at Harnodsville
pH	6.2	6.6	6.4	6.8
Alkalinity, total as $CaCO_3$ p.p.m.	8.0	18.0	8.0	12.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to or/and acid & Fe-AL salts	6.0	6.0	8.0	6.0
Hardness, total as $CaCO_3$ (EDTA)	108.0	108.0	112.0	96.0
Iron, total Fe.	3.1	1.2	2.0	1.1
Aluminum, AL.	4.7	4.8	4.0	3.7
Manganese, Mn.	0.7	0.3	0.7	0.4
Chloride, CL.	8.0	12.0	8.0	8.0
Phosphate, total PO_4	0.4	0.8	0.5	0.8
Sulphate, SO_4	87.0	60.0	99.0	71.0
Total Solids (suspended & dissolved)	133.0	191.0	254.0	169.0
Volatile Solids	3.0	32.0	99.0	36.0
Fixed Solids	130.0	159.0	155.0	133.0
Dissolved Oxygen D.O.	9.2	10.4	10.0	10.0
Percent Oxygen Saturation	82.9	92.8	93.7	90.1
5 Day B.O.D.	1.6	1.0	1.0	1.2
Condition of Water according to British B.O.D. Classification of streams	Clean	Clean	Clean	Clean
Bacterial Count per 1.0 cc.	25,500.	39,000.	8,500.	18,000.
Coliforms per 1.0 cc.	0.	0.	0.	0.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

TABLE II
YOUGHIOGHENY RIVER SANITARY SURVEY
SAMPLED OCT. 24, 1970 by WATTS-SOLTIS

	#4 Laurel Hill Creek at Ursina	#5-A Youghiogheny R. at Confluence	5 Casselman R. at Confluence	6 Youghiogheny R. at Ohiopyle
pH	6.8	6.8	6.8	6.8
Alkalinity, total as $CaCO_3$ p.p.m	20.0	18.0	12.0	16.0
Alkalinity (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to or/and acid & Fe-AL salts	-	2.0	6.0	6.0
Hardness, total as $CaCO_3$ (EDTA)	60.0	60.0	92.0	80.0
Iron, total Fe.	0.4	0.8	1.1	1.1
Aluminum, AL.	4.4	5.8	4.3	3.1
Manganese, Mn.	0.0	0.3	0.4	0.0
Chloride, CL.	8.0	8.0	8.0	8.0
Phosphate, total PO_4	0.5	0.4	0.5	0.4
Sulphate, SO_4	19.0	17.0	68.0	77.0
Nitrate, NO_3	1.67	1.32	3.26	2.99
Total Solids (suspended & dissolved)	118.0	72.0	93.0	79.0
Volatile Solids	19.0	11.0	14.0	17.0
Fixed Solids	99.0	61.0	79.0	62.0
Dissolved Oxygen (D.O.)	10.0	9.8	10.4	10.6
Percent Oxygen Saturation	90.1	96.1	96.3	100.0
5 Days B.O.D.	1.2	0.8	0.8	1.2
Condition of Water according to British B.O.D. classification of streams	Clean.	Very clean	Very clean	Clean
Bacterial Count per 1.0 cc.	9,500.	1,000.	12,000.	44,000.
Coliforms per 1.0 cc.	0.	0.	0.	100.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

TABLE II
YOUGHIOGHENY RIVER SANITARY SURVEY
SAMPLED OCT. 24, 1970 by WATTS-SOLTIS

	7 Indian Creek at Reservoir	8 Youghiogheny R. at Connellsville	9 Youghiogheny R. at Smithton	10 Youghiogheny R. at West Newton
pH	6.8	6.6	6.8	7.2
Alkalinity, total as $CaCO_3$ p.p.m.	20.0	16.0	28.0	26.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to or/and acid & Fe-AL salts	-	8.0	-	4.0
Hardness, total as $CaCO_3$ (EDTA)	88.0	104.0	124.0	192.0
Iron, total Fe.	0.3	1.0	0.6	0.9
Aluminum, AL.	2.1	5.0	4.8	4.5
Manganese, Mn.	0.7	0.0	0.0	0.0
Chloride, CL.	8.0	8.0	12.0	4.0
Phosphate, total PO_4	0.4	0.5	0.5	0.5
Sulphate, SO_4	47.0	148.0	139.0	192.0
Nitrate, NO_3	2.29	2.73	3.7	3.08
Total Solids (suspended & dissolved)	69.0	98.0	114.0	128.0
Volatile Solids	8.0	13.0	25.0	21.0
Fixed Solids	61.0	85.0	89.0	107.0
Suspended Solids Dissolved Oxygen (D.O.)	10.0	10.0	11.2	10.4
Percent Oxygen Saturation	94.3	96.3	109.8	100.0
5 Day B.O.D.	2.0	2.4	2.0	2.0
Condition of Water according to British B.O.D. classification of streams	Clean	Somewhat doubtful	Clean	Clean
Bacterial Count per 1.0 cc.	25,500.	44,000.	77,000.	10,000.
Coliforms per 1.0 cc.	0.	0.	0.	0.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

TABLE II
YOUGHIOGHENY RIVER SANITARY SURVEY
SAMPLED OCT. 24, 1970 by WATTS-SOLTIS

	11 Youghiogheny R. at Sutersville	12 Youghiogheny R. at Versailles
pH	7.2	6.8
Alkalinity, total as $CaCO_3$ p.p.m.	32.0	26.0
Alkalinity (bicarb HCO_3) as $CaCO_3$	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-
Free Mineral Acid Acidity	-	-
Total Acidity, due to or/and acid & Fe-AL salts	-	-
Hardness, total as $CaCO_3$ (EDTA)	204.0	208.0
Iron, total Fe.	0.7	1.1
Aluminum, AL.	5.9	4.9
Manganese, Mn.	0.0	0.0
Chloride, CL.	8.0	12.0
Phosphate, total PO_4	0.4	0.5
Sulphate, SO_4	187.0	198.0
Nitrate, NO_3	2.90	2.11
Total Solids (suspended & dissolved)	309.0	319.0
Volatile Solids	34.0	44.0
Fixed Solids	275.0	275.0
Dissolved Oxygen D.O.	10.4	10.2
Percent Oxygen Saturation	100.0	98.1
5 Day B.O.D.	1.4	1.6
Condition of Water according to British B.O.D. classification of streams	Clean	Clean
Bacterial count per 1.0 cc	14,000.	41,000.
Coliforms per 1.0 cc.	0.	100.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

Table I
Analytical Data
Youghiogheny River Watershed

As reported by Chief of Engineers, U.S. Army, May 4, 1943, on Survey of Ohio River Basin Pollution in House Document #266.

Source	Date	pH	Average Discharge cu. ft. per second
Youghiogheny River above confluence	July 16, 1940	5.1	378.
	July 25, 1940	5.6	258.
	August 6, 1940	4.6	291.
Casselman River below Myersdale	July 15, 1940	3.0	73.
	July 24, 1940	3.6	125.
	August 2, 1940	3.1	35.
Casselman River at Garrett	July 15, 1940	3.2	96.
	July 24, 1940	3.5	150.
	August 2, 1940	3.0	44.
Casselman River at Rockwood	July 16, 1940	3.4	250.
	July 25, 1940	3.5	142.
	August 6, 1940	2.9	40.
Coxes Creek near Rockwood	July 16, 1940	5.2	93.
	July 25, 1940	6.8	32.
	August 6, 1940	3.6	4.
Casselman River near confluence	July 16, 1940	3.9	322.
	July 25, 1940	3.9	248.
	August 6, 1940	3.7	87.
Laurel Hill Creek near confluence	July 16, 1940	7.0	230.
	July 25, 1940	7.0	75.
	August 6, 1940	6.9	32.
Youghiogheny River 1/2 mile below confluence	July 16, 1940	5.1	930.
	July 25, 1940	5.6	581.
	August 6, 1940	4.7	410.
Youghiogheny River just above Connellsville	August 30, 1940	6.8	2470.
	October 1, 1940	6.9	308.
	November 18, 1940	7.1	1005.
Youghiogheny River at West Newton	September 19, 1940	4.5	845.
	November 7, 1940	7.2	3150.
	December 2, 1940	6.6	5720.
Youghiogheny River at Versailles	September 19, 1940	3.8	865.
	November 7, 1940	7.0	3210.
	December 2, 1940	6.2	5770.

Table 1 lists pH determinations in the Youghiogheny River watershed in 1940 during Survey of the Ohio River Basin. Table 2 lists analytical data of a recent survey made in this watershed. When one compares the pH data, especially in the Casselman River watershed, there is an improvement in the water quality due to closing of deep mines operations and present restoration program in the area. However, these conditions can be altered by present or future reopening of these mine water impoundments by stripping operations as the demand for coal becomes critical.

Therefore, in order to further improve the water quality, all future proposed construction of Reservoirs by the U.S. Engineers in the coal producing areas, should also include the responsibility of treating polluted waters prior to their impoundment for flood control and low flow augmentation.

(Signed: M. R. Watts)
M. R. Watts, Chief
Allegheny County Bureau
  of Tests
311 County Office Building
Pittsburgh, Pa. 15219

KISKIMINITAS RIVER WATERSHED

SAMPLED 11/28/70 by WATTS

(1)

	1 Conemaugh River at Blairsville	2 Yellow Creek at Homer City	3 Black Lick Creek near its confluence with Conemaugh River	4 Conemaugh River at Saltsburg
pH	4.8	3.5	2.8	3.8
Alkalinity, total as $CaCO_3$ p.p.m.	4.0	-	-	-
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-	-	-	-
Alkalinity, (carb CO_3) as $CaCO_3$	-	-	-	-
Free Mineral Acid Acidity	-	16.0	40.0	12.0
Total Acidity, due to acid & Fe-AL salts	60.0	240.0	184.0	100.0
Hardness, total as $CaCO_3$ (EDTA)	184.0	152.0	168.0	188.0
Iron, total Fe.	16.0	57.5	33.0	11.0
Aluminum, AL.	62.6	15.1	25.8	14.2
Manganese, Mn.	1.3	0.9	0.9	1.3
Chloride, CL	8.0	8.0	8.0	8.0
Phosphate, total PO_4	2.2	1.3	4.2	2.0
Sulphate, SO_4	214.0	293.0	325.0	237.0
Nitrate, NO_3	3.26	3.08	3.78	3.87
Total Solids	376.0	494.0	548.0	401.0
Volatile Solids	91.0	179.0	189.0	114.0
Fixed Solids	285.0	315.0	359.0	287.0

Condition of Sample

(Signed: M. R. Watts)
M. R. WATTS,
Bureau of Tests

KISKIMINITAS RIVER WATERSHED
SAMPLED 11/28/70 by WATTS

	5 Loyalhanna Creek at Saltsburg
pH	5.6
Alkalinity, total as $CaCO_3$ p.p.m.	6.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	-
Alkalinity (carb CO_3) as $CaCO_3$	-
Free Mineral Acid Acidity	-
Total Acidity, due to acid & Fe-AL salts	36.0
Hardness, total as $CaCO_3$ (EDTA)	172.0
Iron, total Fe.	15.0
Aluminum, AL	6.0
Manganese, Mn.	1.0
Chloride, CL.	8.0
Phosphate, total PO_4	3.7
Sulphate, SO_4	183.0
Total Solids	353.0
Volatile Solids	59.0
Fixed Solids	294.0
Condition of Sample	

Note the Phosphate-Nitrate data, both are biological nutrients and indicate inadequate sewage treatment, or possibly none.

(Signed: M. R. Watts)
M. R. WATTS,
Bureau of Tests

LOYALHANNA CREEK WATERSHED
WESTMORELAND COUNTY
SAMPLED 7/11/70 by WATTS

	Loyalhanna Creek above Ligonier	Mill Creek below Ligonier	Loyalhanna Creek at Latrober Water-works Rt.30-119	Loyalhanna Creek at Latrobe
	77972	77973	77974	77975
pH	7.2	7.0	7.4	6.4
Alkalinity, total as $CaCO_3$	22.0	26.0	30.0	16.0
Alkalinity, (bicarb HCO_3) as $CaCO_3$	22.0	26.0	30.0	-
Free Mineral Acid Acidity	-	-	-	-
Total Acidity, due to acid & Fe-AL salts	-	-	-	4.0
Hardness, total as $CaCO_3$ EDTA	32.0	164.0	72.0	160.0
Iron, total Fe	0.3	0.7	0.9	12.6
Aluminum, AL	1.5	3.5	5.1	6.0
Manganese, Mn.	0.0	0.0	0.0	1.1
Chloride, CL.	8.0	12.0	16.0	20.0
Phosphate, total PO_4	0.5	0.5	0.5	0.4
Sulphate, SO_4	10.0	163.0	100.0	164.0
Total Solids	70.0	247.0	117.0	263.0
Volatile Solids	24.0	60.0	49.0	58.0
Fixed Solids	46.0	187.0	68.0	205.0
Dissolved Oxygen	9.6	9.6	9.6	7.8
5 Day Biochemical Oxygen Demand	1.8	1.8	1.8	1.4
Bacterial Count per 1.0 cc	19,100.	9,250.	9,100.	4,800.
Coliforms per 1.0 cc	10.	10.	0.	10.

(Signed: M. R. Watts)
M. R. WATTS,
BUREAU OF TESTS

LOYALHANNA CREEK WATERSHED
WESTMORELAND COUNTY
SAMPLED 7/11/70 by WATTS

	Crabtree Creek at Crabtree Rt. 119	Loyalhanna Creek at New Alexandria Rt. 22	Loyalhanna Creek at Saltsburg	Conemaugh River at Saltsburg
	77976	77977	77978	77979
pH	4.4	3.8	3.8	3.5
Alkalinity, total as CaCO$_3$	0.0	-	-	-
Alkalinity, (bicaro) HCO$_3$) as CaCO$_3$	-	-	-	-
Free Mineral Acid Acidity	-	4.0	6.0	16.0
Total Acidity, due to acid & Fe-AL salts	86.0	22.0	44.0	80.0
Hardness, total as CaCO$_3$	320.0	256.0	264.0	192.0
Iron, total Fe	6.0	15.5	3.1	1.5
Aluminum, AL	10.8	6.7	8.9	51.9
Manganese, Mn.	1.2	1.9	2.1	1.9
Chloride, CL.	28.0	24.0	24.0	20.0
Phosphate, total PO$_4$	0.6	0.4	0.5	0.5
Sulphate, SO$_4$	404.0	364.0	348.0	256.0
Total Solids	662.0	537.0	416.0	505.0
Volatile Solids	240.0	124.0	112.0	153.0
Fixed Solids	422.0	413.0	304.0	352.0
Dissolved Oxygen	7.4	6.0	7.6	7.8
5 Day Biochemical Oxygen Demand	4.4	1.0	0.8	1.0
Bacterial Count per 1.0 cc	110,000	8,400	0.	500.
Coliforms per 1.0 cc	0.	0.	0.	0.

Note: The low bacterial activity due to low pH conditions. One of the major sources of pollution is the Crabtree Creek area.

(Signed: M. R. Watts)
M.R. WATTS,
BUREAU OF TESTS

STATEMENT OF SHERMAN L. FROST,
DEPUTY DIRECTOR FOR WATER,
OHIO DEPARTMENT OF NATURAL RESOURCES,
COLUMBUS, OHIO

MR. FROST: Mr. Chairman, fellow conferees, ladies and gentlemen. My name is Sherman L. Frost. I am Deputy Director for Water in the Ohio Department of Natural Resources.

I do appreciate the opportunity to visit here across the river in this beautiful setting, and to see the very vigorous participation of the people here, the State and EPA, as we seek to better understand the issues and to see where we are headed.

I am representing William B. Nye, who is the Director of the Ohio Department of Natural Resources, who Governor Gilligan requested to send a representative to this conference, together with a representative of the Ohio Department of Health. Mr. Earl Richards, who was here yesterday was designated as the representative of the Ohio Department of Health. Governor Gilligan informed Mr. Ruckelshaus in response to the request for this conference that Ohio's position is one of wanting to fully cooperate with the Federal Government as well as with our States and the Basin Commission in this conference.

At present, Ohio is seeking through legislation to consolidate and improve the administration of its own environmental oriented programs. A Citizens Task Force under the leadership of Colonel John Glenn has completed its studies to provide the framework and direction for this new effort in Ohio, and to make our administration of environmental programs more streamlined, responsive to current needs, and effective.

Unfortunately, Ohio is presently faced with a critical stringency on funds. We are operating on interim budgets while efforts are being made to resolve a means of State financing before the General Assembly finally acts on a final budget and appropriation.

We are involved through our Ohio Department of Natural Resources in cooperation with the Ohio Department of Development, Health, Urban Affairs, and the Ohio Water Development Authority, and with the Environmental Protection Agency in the preparation of interim water quality plans and fully developed plans as required by EPA.

These become an important base for the Federal construction grant allocation of funds. We completed the first phase of these plans in August 1971 from most of the river basins in Ohio, and these plans will become an important part of the programs of implementation to meet our water quality standards. They will beyond that also become an important part of Ohio's current long-range regional water and related land resources planning program, which is being developed as a partnership with our Federal Agencies and local governments.

Wednesday, Ohio held a public hearing to amend certain of its criteria for water quality standards to bring them in line with amendments in ORSANCO's criteria and with recommendations of EPA. Wednesday we also attended a conference in Chicago called by EPA to meet with the States and Corps of Engineer representatives from Region V on the conduct of the Refuse Act permit program.

The outlook for financial assistance to the States so that they might effectively participate in this program was not encouraging. We would hope that consideration might be given to some means of cost-sharing of the $100 application fee which is filed with the Federal Government and collected for each application that is filed.

As a further part of our program on water quality standards in Ohio, last week, Mr. Mayo, Regional Director of the Environmental Protection Agency from Chicago, and members of his staff, came to Columbus to meet with Director

Nye and his staff on natural resources together with the Ohio Department of Health staff, to discuss some of the issues involved with Ohio's water quality standards so that we might move together to get these in agreement.

I would now present the Ohio Department of Health report for this conference. I do this for Earl Richards, the Acting Chief of the Division of Engineering of the Ohio Department of Health, who prepared the report and is the technical expert for the Ohio Water Pollution Control Board. Mr. Richards had to leave the conference last night to meet commitments today in Columbus relating to our water quality standards hearings which were held Wednesday.

The Ohio portion of the conference area consists of that area north of the Ohio River main stem from Mile Point 40 to Mile Point 42, as well as the Ohio drainage area of Little Beaver Creek which traverses the Ohio-Pennsylvania line several times just upstream from its confluence with the Ohio River at Mile Point 39.6

Included in the drainage area of Little Beaver Creek are the communities of East Palestine, Leetonia, Libson, New Waterford, Salem, and Washingtonville, which have a combined population of nearly 29,000 persons. There are no Ohio communities along the Ohio River within the conference area.

Separate sanitary sewer systems and secondary wastewater treatment facilities are provided for all of the above-named communities except the village of Lisbon. Details with respect to these facilities are given in the appendix attached to this report. On an annual average basis, these secondary facilities provide at least 90 percent removal of suspended solids and biochemical oxygen demand. Secondary facilities for Lisbon are under construction and should be completed by June 1972 as called for in the implementation schedule of the Water Quality Standards for Little Beaver Creek.

Two chemical plants, two sand and gravel operations, a plating plant, and a milk-processing plant discharge their wastes into Little Beaver Creek or its tributaries. The facilities provided for the treatment of these industrial wastes are generally adequate. One of the chemical plants has recently made all of its pretreated industrial wastes tributary to municipal facilities. Improvements for several of these facilities are being required so as to provide adequate treatment on a consistent basis. Details with respect to these facilities are given in the appendix of our report.

The only wastewater discharge from Ohio to the main stem of the Ohio River in the conference area is the filter backwash water and softening sludge from the municipal water plant of East Liverpool, located at Mile Point 40.2. Orders to provide treatment of these wastewaters by January 15, 1973, have been issued by the Ohio Water Pollution Control Board. In setting this date, priority was given to the need for the construction of a covered finished water reservoir.

Pertinent data on the quality of the Ohio River at the water treatment facilities of East Liverpool and Steubenville which is just downstream of the conference area is given in Tables 3 and 4 of our appendix. Upon review of the total coliform data for East Liverpool in Table 3, it will be noted that from January 1970 through July 1971 each of the monthly averages exceeded 10,000/100 ml, and for 8 out of the 19 months, the average coliform densities exceeded 20,000/100 ml. It should also be noted that the number of days in each month the coliform count exceeded 20,000/100 ml ranged from 6 to 15 days.

The lowest monthly average values for total coliforms exceeds Ohio's criteria for public water supply of 5,000/100 ml by a factor of 2.0 and exceeds the recreational use criteria of 1,000/100 ml at least by a factor of 10.0.

The pH values at East Liverpool ranged from a daily low of 6.7 to a high of 7.2 which is well within the range of 6.5 to 8.5 established for the protection of aquatic life.

On five analyses of the finished waters at East Liverpool such metals as barium, cadmium, chromium, copper, lead, nickel, and silver were found to be absent in all of the samples. Values of iron ranged from 0.04 to 0.440 mg/l, and that for zinc ranged from 0.010 to 0.400 mg/l.

The bacterial quality of the river water at Steubenville after storage in a raw water reservoir is shown in Table 4. In the 19-month period starting January 1970, eight of the monthly averages for total coliforms exceeded 5,000/100 ml. All monthly average values exceeded 1,000/100 ml. The lower values at Steubenville are probably due, at least in part, to the die-off that occurs with the storage of raw water.

Values for pH at Steubenville were generally lower than that at East Liverpool with monthly minimum values ranging from 6.1 to 6.5 or less than the minimum criteria of 6.5 for aquatic life.

The finished waters of Steubenville were found to be absent of barium, cadmium, chromium, copper, iron, lead, nickel, and silver. Zinc was found in the range of .120 to .870 mg/l.

Water quality standards for the Ohio River were adopted by the Ohio Water Pollution Control Board on June 13, 1967. These standards require the waters of the Ohio River to be suitable for all uses. Amendments to the original standards for the Ohio River upgrading the criteria for aquatic life were adopted by the Board on April 14, 1970. Copies of the Ohio River standards and amended criteria are appended to this report. Additional amendments to the criteria were proposed to the Board on September 29, 1971. The proposed revised criteria are included in Appendix C.

Mr. Chairman, this concludes our report. I would like to ask that the report with the appendices be made a part of the record.

MR. STEIN: Without objection, it will be entered into the record as if read.

(The document referred to above follows in its entirety.)

REPORT TO THE CONFEREES,

U. S. ENVIRONMENTAL PROTECTION AGENCY,

RE

INTERSTATE POLLUTION OF OHIO RIVER

PITTSBURGH, PENNSYLVANIA AREA

BY

DIVISION OF ENGINEERING
OHIO DEPARTMENT OF HEALTH

SEPTEMBER 1971

REPORT TO THE CONFEREES,
U. S. ENVIRONMENTAL PROTECTION AGENCY
RE
INTERSTATE POLLUTION OF OHIO RIVER
PITTSBURGH, PENNSYLVANIA AREA

BY

DIVISION OF ENGINEERING
OHIO DEPARTMENT OF HEALTH

Mr. Chairman, fellow conferees, ladies and gentlemen, my name is John E. Richards. I am Acting Chief, Division of Engineering, Ohio Department of Health. The Division of Engineering serves as the technical arm of the Ohio Water Pollution Control Board. I am representing Dr. Thomas A. Gardner, who is Acting Director of Health, and Chairman of the Ohio Water Pollution Control Board and I wish to make the following statement on his behalf.

Description of the Area

The Ohio portion of the conference area consists of that area north of the Ohio River main stem from mile point 40 to mile point 42, as well as the Ohio drainage area of Little Beaver Creek which traverses the Ohio-Pennsylvania line several times just upstream from its confluence with the Ohio River at mile point 39.6.

Included in the drainage area of Little Beaver Creek are the communities of East Palestine, Leetonia, Lisbon, New Waterford, Salem, and Washingtonville, which have a combined population of nearly 29,000 persons. There are no Ohio communities along the Ohio River within the conference area.

Wastewater Treatment Facilities

Separate sanitary sewer systems and secondary wastewater treatment facilities are provided for all of the above named communities except the Village of Lisbon. Details with respect to these facilities are given in Table 1 (Appendix A). On an annual average basis, these secondary facilities provide at least 90% removal of suspended solids and biochemical oxygen demand. Secondary facilities for Lisbon are under construction and should be completed by June 1972 as called for in the implementation schedule of the Water Quality Standards for Little Beaver Creek.

Two chemical plants, two sand and gravel operations, a plating plant, and a milk processing plant discharge their wastes into Little Beaver Creek or its tributaries. The facilities provided for the treatment of these industrial wastes are generally adequate. One of the chemical plants has recently made all of its pretreated industrial wastes tributary to municipal facilities. Improvements for several of these facilities are being required so as to provide adequate treatment on a consistent basis. Details with respect to these facilities are given in Table 2 (Appendix A).

The only wastewater discharge from Ohio to the main stem of the Ohio River in the conference area is the filter backwash water and softening sludge from the municipal water plant of East Liverpool, located at mile point 40.2. Orders to provide treatment of these wastewaters by January 15, 1973, have been issued by the Ohio Water Pollution Control Board. In setting this date, priority was given to the need for the construction of a covered finished water reservoir.

Current Water Quality

Pertinent data on the quality of the Ohio River at the water treatment facilities of East Liverpool and Steubenville which is just downstream of the conference area is given in Tables 3 and 4 (Appendix A). Upon review of the total coliform data for East Liverpool in Table 3, it will be noted that from January 1970 through July 1971, each of the monthly averages exceeded 10,000/100 ml, and for eight out of the nineteen months, the average coliform densities exceeded 20,000/100 ml. It should also be noted that the number of days in each month the coliform counts exceeded 20,000/100 ml ranged from six to 15 days.

The lowest monthly average values for total coliforms exceeds Ohio's criteria for public water supply of 5,000/100 ml by a factor of 2.0 and exceeds the recreational use criteria of 1,000/100 ml at least by a factor of 10.0.

The pH values at East Liverpool ranged from a daily low of 6.7 to a high of 7.2 which is well within the range of 6.5 to 8.5 established for the protection of aquatic life.

On five analyses of the finished waters at East Liverpool such metals as barium, cadmium, chromium, copper, lead, nickel, and silver were found to be absent in all of the samples. Values of iron ranged from 0.04 to 0.440 mg/l, and that for zinc ranged from 0.010 to 0.400 mg/l.

The bacterial quality of the river water at Steubenville after storage in a raw water reservoir is shown in Table 4. In the 19 month period starting January 1970, eight of the monthly averages for total coliforms exceeded 5,000/100 ml. All monthly average values exceeded 1,000/100 ml. The lower values at Steubenville are probably due, at least in part, to the die-off that occurs with the storage of raw water.

Values for pH at Steubenville were generally lower than that at East Liverpool with monthly minimum values ranging from 6.1 to 6.5 or less than the minimum criteria of 6.5 for aquatic life.

The finished waters of Steubenville were found to be absent of barium, cadmium, chromium, copper, iron, lead, nickel, and silver. Zinc was found in the range of .120 to .870 mg/l.

Water Quality Standards

Water Quality Standards for the Ohio River were adopted by the Ohio Water Pollution Control Board on June 13, 1967. These standards require the waters of the Ohio River to be suitable for all uses. Amendments to the original standards for the Ohio River upgrading the criteria for aquatic life were adopted by the Board on April 14, 1970. Copies of the Ohio River standards and amended criteria are included in Appendix B. Additional amendments to the criteria were proposed to the Board on September 29, 1971. The proposed revised criteria are included in Appendix C. The proposed changes are indicated as either a deletion or as an addition. The additions are shown in capital letters.

Changes in Ohio's criteria that are applicable to the Ohio River in addition to those indicated as proposed in the report of the Environmental Protection Agency (Page 25-26) are as follows:

	Adopted April 14, 1970	Proposed September 29, 1971
Bacteria Fecal Coliforms/100	200	Same
Toxic Substances	-	1/10 TLm_{96}
Cyanides mg/l	0.025	Same
Fluorides mg/l	1.0	Same
Mercury mg/l	Not included	0.005

APPENDIX A

TABLE I. DATA ON MUNICIPAL WASTEWATER TREATMENT FACILITIES
LITTLE BEAVER CREEK BASIN

PLACE AND YEAR FACILITIES BUILT	RECEIVING STREAM	TYPE-SEWER SYST.(1) TYPE-TREAT.FAC. DESIGN PE	EST. 1969 POP. AVG. FLOW MGD	WASTE LOADS + % REMOVAL SUSPENDED SOLIDS - PE BIO. OXYGEN DEMAND PE			TREATMENT REQUIREMENTS AND REMARKS
				RAW	FINAL	%	
		MUNICIPALITIES					
EAST PALISTINE 1963	LESLIE RUN	S - SEC. 6,500	6,130 0.584	5,013 5,718	422 437	91.5 92.5	DISINFECTION
LEETONIA 1925, 61	CHERRY VALLEY RUN	S - SEC. 4,600	2,562 0.215	5,000 4,170	447 344	91.0 92.0	DISINFECTION
LISBON 1955	MIDDLE FORK, LT. BEAVER CRK.	C - PRIM. - D 6,000	3,763 0.205	1,200 1,660	421 674	65.0 54.0	SECONDARY TREATMENT REPORT & GENERAL PLANS APPR. 11-68
NEW WATERFORD 1961	BULL CRK.	S - SEC. 1,300	774 799	758 1,164	40 60	92.0 91.0	DISINFECTION
SALEM 1929,56	MIDDLE FORK, LT. BEAVER CRK.	S - SEC. 20,000	14,102 2.10	17,800 30,900	880 1,580	95.0 95.0	PLANT IMPROVEMENTS
WASHINGTONVILLE 1961	CHERRY VALLEY RUN	S - SEC. - D 1,000	833 0.175	990 875	56 14	95.0 98.0	NONE
		SEWER DISTRICTS					
COLUMBIANA CO. S.D. #2 EAST LIVERPOOL AREA (CALCUTTA AREA)	TRIB. OF LT. BEAVER CRK.	NONE	- -	- -	- -	- -	SECONDARY TREATMENT + DISINFECTION DETAIL PLANS APPROVED 1967
COLUMBIANA CO. W & S.D. #2 (LISBON AREA)	TRIB. OF MIDDLE FORK, LT. BEAVER CRK.	NONE	- -	- -	- -	- -	CONNECT TO LISBON

TABLE I. - continued

PLACE AND YEAR FACILITIES BUILT	RECEIVING STREAM	TYPE-SEWER SYST.(1) TYPE-TREAT. FAC. DESIGN PE	EST. 1969 POP. AVG. FLOW MGD	WASTE LOADS + & REMOVAL SUSPENDED SOLIDS - PE BIO. OXYGEN DEMAND PE RAW	 FINAL	 &	TREATMENT REQUIREMENTS AND REMARKS
		SEWER DISTRICTS - con't.					
MAHONING CO. S.D. #20 NEW MIDDLETOWN 1958	HONEY CRK.	S - SEC. - D 2,000	725 0.067	655 722	30 30	94.7 96.0	NONE

FOOTNOTES

(1) TYPE OF SEWER SYSTEM
C - COMBINED
S - SEPARATE

TYPE OF TREATMENT
PRIM. - PRIMARY
CHEM. - CHEMICAL
INTER. - INTERMEDIATE
SEC. - SECONDARY
D - DISINFECTION
PE - POPULATION EQUIVALENT

(2) NO DATA

(3) E - ESTIMATED

TABLE 2. DATA ON INDUSTRIAL WASTEWATER TREATMENT FACILITIES
LITTLE BEAVER CREEK BASIN

NAME	RECEIVING STREAM	TYPE OF INDUSTRY	CRITICAL CONSTITUENTS	TREATMENT PROVIDED	ADDITIONAL REQUIREMENTS AND REMARKS
R. L. CHABOT PLATING, INC.	NORTH FORK, LITTLE BEAVER CREEK	METAL FINISHING	CHROMIUM, ZINC CYANIDE	CHROME REDUCTION CYANIDE CHLORINATION PRECIPITATION OF METALS	IMPROVEMENTS(1)
CHEMLINE CORP. OHIO INDUSTRIAL WASTES DIV.	WEST FORK, LITTLE BEAVER CREEK	TREATMENT OF INDUSTRIAL WASTES	MISCELLANEOUS ACIDS	CHEMICAL TREATMENT SETTLING	IMPROVEMENTS
R. A. FORTUNE SAND & GRAVEL CO.	LITTLE BEAVER CREEK	SAND & GRAVEL WASHING	INERT SOLIDS	SETTLING POND	NONE
GURLEA SAND & GRAVEL CO.	MIDDLE FORK, LITTLE BEAVER CREEK	SAND & GRAVEL WASHING	INERT SOLIDS	SETTLING POND	
NEASE CHEMICAL CO.	MIDDLE FORK, LITTLE BEAVER CREEK	CHEMICAL MFG.	ORGANIC WASTES	LAGOONS, TO MUN. TREATMENT PLANT	NONE
PETERSBURG CREAMERY	HONEY CREEK NORTH FORK, LITTLE BEAVER CREEK	MILK PROCESSING	OXYGEN DEMAND	SAND FILTERS	NONE

(1) UNDER ORDERS FROM THE OHIO WATER POLLUTION CONTROL BOARD

TABLE 3. ANALYSIS OF OHIO RIVER
EAST LIVERPOOL WATER TREATMENT PLANT(1)
1970 - 1971

A. RAW WATER

TOTAL COLIFORMS

MONTH	MONTHLY AVERAGES 1970	MONTHLY AVERAGES 1971	NUMBER OF DAYS EXCEEDING 20,000/100ml 1970	NUMBER OF DAYS EXCEEDING 20,000/100ml 1971
January	19,600	21,300	9	10
February	20,300	19,400	12	11
March	12,400	18,100	7	12
April	16,600	21,500	9	13
May	14,300	21,700	8	12
June	14,800	18,100	10	14
July	11,800	19,800	6	8
August	22,700	---	14	-
September	22,000	---	15	-
October	21,000	---	13	-
November	26,200	---	10	-
December	19,100	---	9	-

pH VALUES
DAILY MINIMUM AND MAXIMUM

	1970	1971
January - March	6.7 - 7.0	6.6 - 7.2
April - June	6.9 - 7.1	6.8 - 7.1
July - September	6.6 - 7.0	
October - December	6.7 - 7.2	

B. FINISHED WATERS

METALS

Fe 0.010 - 0.440
Zn 0.010 - 0.400
Not detected Ba, Cd, Cr, Cu, Pb, Ni, Ag.

---

(1) River Intake

TABLE 4. ANALYSIS OF OHIO RIVER STEUBENVILLE WATER TREATMENT PLANT(1) 1970 - 1971

A. RAW WATER

TOTAL COLIFORMS

	MONTHLY AVERAGES		NUMBER OF DAYS EXCEEDING 20,000/100ml	
MONTH	1970	1971	1970	1971
January	5,700	4,200	1	0
February	5,500	15,400	1	3
March	2,900	5,600	0	1
April	5,000	2,400	1	0
May	3,900	3,500	0	0
June	2,700	1,300	0	0
July	8,100	2,900	4	0
August	2,100	---	0	-
September	6,100	---	1	-
October	3,900	---	0	-
November	25,600	---	8	-
December	27,000	---	10	-

pH VALUES DAILY MINIMUM AND MAXIMUM

	1970	1971
January - March	6.2 - 6.7	6.1 - 6.5
April - June	6.1 - 7.1	6.2 - 7.0
July - September	6.1 - 6.9	
October - December	6.2 - 7.2	

B. FINISHED WATERS

METALS

Zinc	0.120 - 0.870
Mn	0.00 - 0.02

Not detected Ba, Cd, Cr, Cu, Fe, Pb, Ni, Ag.

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(1) Raw Water Storage Reservoir

APPENDIX B

WATER POLLUTION CONTROL BOARD
OHIO DEPARTMENT OF HEALTH
COLUMBUS, OHIO

RESOLUTION ESTABLISHING AMENDED CRITERIA OF STREAM-WATER QUALITY FOR VARIOUS USES ADOPTED BY THE BOARD ON APRIL 14, 1970

WHEREAS, Section 6111.03, of the Ohio Revised Code, provides, in part, as follows:

> "The water pollution control board shall have power:
>
> (A) To develop programs for the prevention, control and abatement of new or existing pollution of the waters of the state; ...." and

WHEREAS, Primary indicators of stream-water quality are needed as guides for appraising the suitability of surface waters in Ohio for various uses; and

WHEREAS, The stream-water quality criteria for various uses and minimum conditions applicable to all waters adopted by the Board of June 14, 1966, have been amended by the Ohio River Valley Water Sanitation Commission; and

WHEREAS, The criteria adopted by the Board on October 10, 1967, have been further amended by the Ohio River Valley Water Sanitation Commission;

THEREFORE BE IT RESOLVED, That the following amended stream-water quality criteria for various uses, and minimum conditions applicable to all waters, and policies for protection of high quality waters and for water quality design flow, are hereby adopted in accordance with amendments of the Ohio River Valley Water Sanitation Commission, and the recommendations of the Federal Water Pollution Control Administration.

AND BE IT FURTHER RESOLVED, That the amended stream-water quality criteria for various uses, for minimum conditions, for protection of high quality waters, and, for water quality design flow, be made applicable to the following waters of the state:

1. Maumee, Tiffin, St. Joseph, and St. Marys River Basins;
2. Lake Erie & Interstate Waters thereof;
3. Great Miami, Whitewater, and Wabash River Basins;
4. Ashtabula River, Conneaut and Turkey Creeks;
5. Ohio River of Ohio-West Virginia and Ohio-Kentucky;
6. North Central Ohio Tributaries of Lake Erie;
7. Scioto River Basin;
8. Little Miami River Basin;
9. Rocky, Cuyahoga, Chagrin, and Grand River Basins;
10. Muskingum River Basin;
11. Hocking River Basin.

MINIMUM CONDITIONS APPLICABLE TO ALL WATERS AT ALL PLACES AND AT ALL TIMES

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.

2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.

3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.

4. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

PROTECTION OF HIGH QUALITY WATERS

Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality, pursuant to the Ohio water pollution control statutes, so as not to interfere with or become injurious to any assigned uses made of, or presently possible, in such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the most effective waste treatment available under existing technology. The Ohio Water Pollution Control Board will cooperate with other agencies of the state, agencies of other states, interstate agencies and the Federal Government in the enforcement of this policy.

WATER QUALITY DESIGN FLOW

Where applicable for the determination of treatment requirements the water quality design flow shall be the minimum seven consecutive day average that is exceeded in 90 percent of the years.

STREAM-QUALITY CRITERIA

FOR PUBLIC WATER SUPPLY

The following criteria are for evaluation of stream quality at the point at which water is withdrawn for treatment and distribution as a potable supply:

1. Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five percent of such samples.

2. Threshold-odor Number: Not to exceed 24 (at 60 deg. C.) as a daily average.

3. Dissolved solids: Not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time.

4. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium-90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l.

5. Chemical constituents: Not to exceed the following specified concentrations at any time.

Constituent	Concentration (mg/l)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Cyanide	0.025
Fluoride	1.0
Lead	0.05
Selenium	0.01
Silver	0.05

FOR INDUSTRIAL WATER SUPPLY

The following criteria are applicable to stream water at the point at which the water is withdrawn for use (either with or without treatment) for industrial cooling and processing:

1. Dissolved oxygen: Not less than 2.0 mg/l as a daily-average value, nor less than 1.0 mg/l at any time.

2. pH: Not less than 5.0 nor greater than 9.0 at any time.

3. Temperature: Not to exceed 95 deg. F. at any time.

4. Dissolved solids: Not to exceed 750 mg/l as a monthly average value, nor exceed 1,000 mg/l at any time.

FOR AQUATIC LIFE A

The following criteria are for evaluation of conditions for the maintenance of a well-balanced, warm-water fish population. They are applicable at any point in the stream except for areas necessary for the admixture of waste effluents with stream water:

1. Dissolved oxygen: Not less than an average of 5.0 mg/l per calendar day and not less than 4.0 mg/l at any time.

2. pH:

   A. No values below 6.0 nor above 8.5.

   B. Daily fluctuations which exceed the range of pH 6.0 to pH 8.5 and are correlated with photosynthetic activity may be tolerated.

3. Temperature:

   A. No abnormal temperature changes that may affect aquatic life unless caused by natural conditions.

   B. The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.

   C. Maximum temperature rise at any time or place above natural temperatures shall not exceed 5 deg. F. In addition, the water temperature shall not exceed the maximum limits indicated in the following table.

WATERS	Maximum Temperature in Deg. F. During Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
All waters except Ohio River	50	50	60	70	80	90	90	90	90	78	70	57
Main Stem-Ohio River	50	50	60	70	80	87	89	89	87	78	70	57

4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

FOR AQUATIC LIFE B

The following criteria are for evaluation of conditions for the maintenance of desirable biological growths and, in limited stretches of a stream, for permitting the passage of fish through the water, except for areas necessary for admixture of effluents with stream water:

1. Dissolved oxygen: Not less than 3.0 mg/l as a daily-average value, nor less than 2.0 mg/l at any time.

2. pH: Not less than 6.0 nor greater than 8.5 at any time.

3. Temperature: Not to exceed 95 deg. F. at any time.

4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

FOR RECREATION

The following criterion is for evaluation of conditions at any point in waters designated to be used for recreational purposes, including such water-contact activities as swimming and water skiing:

Bacteria: The fecal coliform content (either MPN or MF count) not to exceed 200 per 100 ML as a monthly geometric mean based on not less than five samples per month; nor exceed 400 per 100 ML in more than ten percent of all samples taken during a month.

FOR AGRICULTURAL USE AND STOCK WATERING

The following criteria are applicable for the evaluation of stream quality at places where water is withdrawn for agricultural use or stock-watering purposes:

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.

2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.

3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.

4. Free from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

APPENDIX C

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WATER POLLUTION CONTROL BOARD
OHIO DEPARTMENT OF HEALTH
COLUMBUS, OHIO

RESOLUTION ESTABLISHING AMENDED CRITERIA OF STREAM-WATER QUALITY FOR VARIOUS USES ADOPTED BY THE BOARD ON ~~APRIL 14, 1970~~

WHEREAS~~, Section 6111.03, of the Ohio Revised Code, provides, in part, as follows:~~

> ~~"The water pollution control board shall have power:~~
>
> ~~(A) To develop programs for the prevention, control and abatement of new or existing pollution of the waters of the state; . . . ." and~~

WHEREAS~~, Primary indicators of stream water quality are needed as guides for appraising the suitability of surface waters in Ohio for various uses; and~~

WHEREAS~~, The stream water quality criteria for various uses and minimum conditions applicable to all waters adopted by the Board of June 14, 1966, have been amended by the Ohio River Valley Water Sanitation Commission; and~~

WHEREAS~~, The criteria adopted by the Board on October 10, 1967, have been further amended by the Ohio River Valley Water Sanitation Commission;~~

~~THEREFORE BE IT RESOLVED, That the following amended stream water quality criteria for various uses, and minimum conditions applicable to all waters, and policies for protection of high quality waters and for water quality design flow, are hereby adopted in accordance with amendments of the Ohio River Valley Water Sanitation Commission, and the recommendations of the Federal Water Pollution Control Administration.~~

~~AND BE IT FURTHER RESOLVED, That the~~ THE FOLLOWING amended stream-water quality criteria for various uses, for minimum conditions, for protection of high quality waters, and, for water quality design flow, ARE HEREBY ADOPTED AND be made applicable to the following waters of the state:

1. Maumee, Tiffin, St. Joseph, and St. Marys River Basins;
~~2. Lake Erie & Interstate Waters thereof;~~
2. MAHONING RIVER, LITTLE BEAVER CREEK, PYMATUNING CREEK AND YANKEE CREEK BASINS;
3. Great Miami, Whitewater, and Wabash River Basins;
4. Ashtabula River, Conneaut and Turkey Creeks;
5. Ohio River of Ohio-West Virginia and Ohio-Kentucky;
6. North Central Ohio Tributaries of Lake Erie;
7. Scioto River Basin;
8. Little Miami River Basin;
9. Rocky, Cuyahoga, Chagrin, and Grand River Basins;
10. Muskingum River Basin;
11. Hocking River Basin.

MINIMUM CONDITIONS APPLICABLE TO ALL WATERS AT ALL PLACES AND AT ALL TIMES

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.

2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.

3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.

4. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

PROTECTION OF HIGH QUALITY WATERS

Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality, pursuant to the Ohio water pollution control statutues, so as not to interfere with or become injurious to any assigned uses made of, or presently possible, in such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the most effective waste treatment available under existing technology. The Ohio Water Pollution Control Board will cooperate with other agencies of the state, agencies of other states, interstate agencies and the Federal Government in the enforcement of this policy.

WATER QUALITY DESIGN FLOW

Where applicable for the determination of treatment requirements the water quality design flow shall be the minimum seven consecutive day average that is exceeded in 90 percent of the years.

STREAM-QUALITY CRITERIA

FOR PUBLIC WATER SUPPLY

WATERS DESIGNATED AS A SOURCE OF PUBLIC WATER SUPPLY WILL BE OF SUCH QUALITY THAT FEDERAL-DRINKING WATER STANDARDS FOR FINISHED WATER CAN BE MET BY CONVENTIONAL TREATMENT WHICH INCLUDES COAGULATION, FILTRATION AND DISINFECTION.

The following criteria are for evaluation of stream quality at the point at which water is withdrawn for treatment and distribution as a potable supply:

1. Bacteria: Coliform group not to exceed 5,000 per 100 ml as a monthly average value (either MPN or MF count); nor exceed this number in more than 20 percent of the samples examined during any month; nor exceed 20,000 per 100 ml in more than five percent of such samples.

2. Threshold-odor number: Not to exceed 24 (at 60 deg. C.) as a daily average.

3. Dissolved solids: Not to exceed 500 mg/l as a monthly average value, nor exceed 750 mg/l at any time.

4. Radioactivity: Gross beta activity not to exceed 1,000 picocuries per liter (pCi/l), nor shall activity from dissolved strontium 90 exceed 10 pCi/l, nor shall activity from dissolved alpha emitters exceed 3 pCi/l.

5. Chemical constituents: Not to exceed the following specified concentrations at any time.

Constituent	Concentration (mg/l)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Cyanide	0.025
Fluoride	1.0
Lead	0.05
Selenium	0.01
Silver	0.05
MERCURY	0.005

FOR INDUSTRIAL WATER SUPPLY

The following criteria are applicable to stream water at the point at which the water is withdrawn for use (either with or without treatment) for industrial cooling and processing:

~~1. Dissolved oxygen: Not less than 2.0 mg/l as a daily average value, nor less than 1.0 mg/l at any time.~~

~~2. pH: Not less than 5.0 nor greater than 9.0 at any time.~~

~~3. Temperature: Not to exceed 95 deg. F. at any time.~~

~~4.~~ Dissolved solids: Not to exceed ~~750 mg/l~~ 500 MG/L as a monthly average value, nor exceed ~~1,000 mg/l~~ 750 MG/L at any time.

FOR AQUATIC LIFE A

The following criteria are for evaluation of conditions for the maintenance of a well-balanced, warm-water fish population. They are applicable at any point in the stream except for areas necessary for the admixture of waste effluents with stream water:

1. Dissolved oxygen: Not less than an average of 5.0 mg/l per calendar day and not less than 4.0 mg/l at any time.

2. pH:

   A. No values below 6.0 nor above 8.5.

   B. Daily fluctuations which exceed the range of pH 6.0 to pH 8.5 and are correlated with photosynthetic activity may be tolerated.

3. Temperature:

   A. No abnormal temperature changes that may affect aquatic life unless caused by natural conditions.

   B. The normal daily and seasonal temperature fluctuations that existed before the addition of heat due to other than natural causes shall be maintained.

   C. Maximum temperature rise at any time or place above natural temperatures shall not exceed 5 deg. F. In addition, the water temperature shall not exceed the maximum limits indicated in the following table.

WATERS	Maximum Temperature in Deg. F. During Month											
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
All waters except Ohio River	50	50	60	70	80	90	90	90	90	78	70	57
Main Stem-Ohio River	50	50	60	70	80	87	89	89	87	78	70	57

4. Toxic substances: Not to exceed one-tenth of the ~~48-hour~~ 96-HOUR median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.

~~FOR AQUATIC LIFE B~~

~~The following criteria are for evaluation of conditions for the maintenance of desirable biological growths and, in limited stretches of a stream, for permitting the passage of fish through the water, except for areas necessary for admixture of effluents with stream water:~~

~~1. Dissolved oxygen: Not less than 3.0 mg/l as a daily average value, nor less than 2.0 mg/l at any time.~~

~~2. pH: Not less than 6.0 nor greater than 8.5 at any time.~~

~~3. Temperature: Not to exceed 95 deg. F. at any time.~~

~~4. Toxic substances: Not to exceed one-tenth of the 48-hour median tolerance limit, except that other limiting concentrations may be used in specific cases when justified on the basis of available evidence and approved by the appropriate regulatory agency.~~

FOR AQUATIC LIFE - COLD WATER FISHERIES

THE FOLLOWING CRITERIA ARE FOR EVALUATION OF CONDITIONS FOR THE MAINTENANCE OF AQUATIC LIFE - COLD WATER FISHERIES POPULATION. THEY ARE APPLICABLE AT ANY POINT IN THE STREAM EXCEPT FOR AREAS NECESSARY FOR THE ADMIXTURE OF SEWAGE EFFLUENTS WITH STREAM WATER:

1. DISSOLVED OXYGEN: NOT LESS THAN 6 MG/1 AT ANY TIME AND NOT LESS THAN 7 MG/1 AT ANY TIME IN SPAWNING AREAS.

2. PH: NO VALUES BELOW 6.5 NOR ABOVE 8.5

3. TEMPERATURE: NATURAL STREAM TEMPERATURES. NO HEAT TO BE ADDED.

4. TOXIC SUBSTANCES: NOT TO EXCEED ONE-TENTH OF THE 96-HOUR MEDIAN TOLERANCE LIMIT, EXCEPT THAT OTHER LIMITING CONCENTRATIONS MAY BE USED IN SPECIFIC CASES WHEN JUSTIFIED ON THE BASIS OF AVAILABLE EVIDENCE AND APPROVED BY THE APPROPRIATE REGULATORY AGENCY.

FOR RECREATION

The following criterion is for evaluation of conditions at any point in waters designated to be used for recreational purposes~~,~~: ~~including such water contact activities as swimming and water skiing.~~

PRIMARY CONTACT - (SWIMMING AND WATER-SKIING)

Bacteria: The fecal coliform content (either MPN or MF count) not to exceed 200 per 100 ML as a monthly geometric mean based on not less than five samples per month; nor exceed 400 per 100 ML in more than ten percent of all samples taken during a month.

SECONDARY CONTACT - (BOATING, FISHING AND WADING)

BACTERIA: THE FECAL COLIFORM CONTENT (EITHER MPN OR MF COUNT) NOT TO EXCEED 1,000 PER 100 ML AS A MONTHLY GEOMETRIC MEAN BASED ON NOT LESS THAN FIVE SAMPLES PER MONTH; NOR EXCEED 2,000 PER 100 ML IN MORE THAN TEN PERCENT OF ALL SAMPLES TAKEN DURING A MONTH.

FOR AGRICULTURAL USE AND STOCK WATERING

The following criteria are applicable for the evaluation of stream quality at places where water is withdrawn for agricultural use or stock-water purposes:

1. Free from substances attributable to municipal, industrial or other discharges, or agricultural practices that will settle to form putrescent or otherwise objectionable sludge deposits.

2. Free from floating debris, oil, scum and other floating materials attributable to municipal, industrial or other discharges, or agricultural practices in amounts sufficient to be unsightly or deleterious.

3. Free from materials attributable to municipal, industrial or other discharges, or agricultural practices producing color, odor or other conditions in such degree as to create a nuisance.

4. Free from substances attributable to municipal, industrial or other discharges or agricultural practices in concentrations or combinations which are toxic or harmful to human, animal, plant or aquatic life.

MR. STEIN: Are there any comments or questions? If not, may we go on with Mr. Horton of ORSANCO?

STATEMENT OF ROBERT K. HORTON,
EXECUTIVE DIRECTOR, ORSANCO,
CINCINNATI, OHIO

MR. HORTON: Thank you, Mr. Chairman. Conferees, ladies and gentlemen.

Under the provisions of the Ohio River Valley Water Sanitation Compact, which was signed in 1948, each of the States pledged its cooperation in coordinating their efforts in the control of water pollution. One example of this coordination was early agreement on the adoption of water quality standards for the Ohio River.

How well the signatory States have succeeded in fulfilling their pledge of cooperation is revealed in one way by the fact that in 1948 less than 1 percent of the sewage discharged to the Ohio River was being treated. Today 99.5 percent of the population on the Ohio River has sewage treatment plants in operation, and this has come about as the result of local government responsiveness to State compliance efforts.

In 1948, all industrial wastes were being discharged without any restriction, and today at least 90 percent of the industries along the Ohio have installed facilities to meet at least minor basic requirements established by ORSANCO.

I cite these facts simply to provide some perspective that is lacking in the report prepared by EPA for this conference.

Now, Mr. Chairman, I don't intend to go over old ground, but there are some points about that report about which I feel very strongly and feel that mention -- at least brief mention -- should be made at this time.

For example, the report makes no attempt to assess changes in river quality conditions that have occurred over the past several years, and we were told yesterday that the staff of EPA did not consider it their job to do this. Maybe so. But it seems to me that some understanding and appreciation of what has happened over the years is essential if we are to deal realistically with remaining problems.

Perhaps of even greater importance is the utter failure of the EPA report to evaluate or even comment on the impact that ongoing programs, particularly in this case the programs of the Commonwealth of Pennsylvania and ORSANCO, will have on quality conditions in the upper

Ohio River.

In this connection -- and I said this yesterday -- the EPA report does not really address itself to the question of cause and effect. The report speaks of waste discharges and it speaks, in some places, of river conditions. But these matters are discussed in disjointed fashion, and the kind of treatment that is given to it raises at least in my mind doubts concerning the validity of some of the findings in the report.

Just a couple of examples to show what I mean. The report refers to pollution in this stretch of the Ohio River from untreated sewage. But even in the report itself there is a table that shows that the only community in this stretch of the Ohio River that doesn't have a sewage treatment plant was the town of Glenfield, a town of 700 people, out of a total population of 1.4 million, and it so happens that the town of Glenfield is no longer. It has been abandoned because of the construction of a highway. Now another example relates to temperature. On page 45, the report speaks of thermal loads from two powerplants on the Monongahela and says that theoretically these plants would raise the temperature of the river by 41.9° F. And then it says four plants on the Ohio River would theoretically raise temperature by 5.5°.

Well, the question is: Have these conditions occurred? Did these powerplants actually raise the temperature of this? But the point I am making is that the report makes no attempt to even approximate some kind of a heat balance to determine really what the effects of these powerplants are.

Therefore, it is a matter of regret -- and I think that is the word -- on the part of my commissioners that in such an important undertaking as the calling of a Federal conference, that EPA did not feel an obligation to inform itself more fully on the nature and scope of the pollution problem in the upper Ohio River and the result of steps already under way to deal with it.

Now all of the developments regarding the State program and the interstate program are matters of public record. They are well documented in the reports of the States, and they are documented in the annual reports of ORSANCO, some 7,000 copies of which are distributed to members of the Congress and State legislatures, to Federal and State Agencies, and to libraries and universities.

Now one of the most significant -- to me at least -- omissions in the report is failure to mention the effluent standards that were adopted by ORSANCO in November of 1970. So far as I know, these are the most far-reaching effluent standards — well, these are the most far-reaching effluent standards that I have seen anywhere. And they were adopted by the six States bordering on the Ohio River, as regional standards applying to the river. And they are now the subject of compliance efforts of Pennsylvania, West Virginia, and Ohio, which are concerned with this area of the river, and the other States downstream, too. And I would like, Mr. Chairman, if I may, to submit a copy of those standards for the record.

MR. STEIN: Without objection, they will be entered into the record as if read.

(The document referred to above follows in its entirety.)

OHIO RIVER VALLEY WATER SANITATION COMMISSION

An interstate agency representing: Illinois • Indiana • Kentucky • New York • Ohio •
Pennsylvania • Virginia • West Virginia. Headquarters: 414 Walnut Street, Cincinnati, Ohio 45202

Notice of Requirements (Standards Number 1-70 and 2-70) Pertaining to Sewage and Industrial Wastes Discharged to the Ohio River

You are hereby notified that on November 13, 1970, the Ohio River Valley Water Sanitation Commission, acting in accordance with and pursuant to authority contained in Article VI of the Ohio River Valley Water Sanitation Compact, established, subject to revision as changing conditions require, the attached standards for the modification or treatment of all sewage from municipalities or other political subdivisions, public or private institutions, corporations, or watercraft, and for the modification or treatment of all industrial wastes discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, Pennsylvania.

Under terms and provisions of the Ohio River Valley Water Sanitation Compact all sewage from municipalities or other political subdivisions, public or private institutions, corporations or watercraft and all industrial wastes discharged or permitted to flow into the Ohio River will be required to be modified or treated to the extent specified in the attached standards.

Robert K. Horton
Executive Director and Chief Engineer

DEFINITIONS AND PROCEDURES FOR APPLICATION OF POLLUTION CONTROL STANDARDS NOS. 1-70, 2-70

The following definitions and application procedures are incorporated as part of Pollution Control Standards Nos. 1-70, 2-70:

(a) "Sewage" means the water carried human or animal wastes from residences, buildings, industrial, commercial or governmental establishments, public or private institutions, watercraft and floating facilities, or other places, together with such groundwater infiltration and surfacewaters as may be present. The admixture with sewage, as defined, of industrial wastes, as hereinafter defined, shall also be regarded as sewage;

(b) "Industrial waste," other than cooling water, means any liquid, gaseous, solid material or waste substance or combination thereof including garbage, refuse, decayed wood, sawdust, shavings, bark, sand, lime, cinders, ashes, offal, oil, tar, dyestuffs, acids, chemicals, heat and all discarded matter resulting from any process or operation, including storage and transportation, manufacturing, commercial, agricultural and government operations, or from the development and recovery of any natural resources;

(c) "Cooling water" means water used as a heat transfer medium to which no process, waste or other materials, exclusive of chlorine, are added intentionally or unintentionally prior to discharge;

(d) "Substantially complete removal" means removal to the lowest practicable level attainable with current technology;

(e) Methods for determining waste constituents and characteristics shall be those set forth in the most recent edition of "Standard Methods for the Examination of Water and Wastewater," prepared and published jointly by the American Public Health Association, American Water Works Association, and the Water Pollution Control Federation, except that such other methods may be used as are approved by the Commission.

POLLUTION CONTROL STANDARD NO. 1-70

All sewage from municipalities or political subdivisions, public or private institutions, or installations, or corporations, or watercraft, and all industrial wastes, other than cooling water as hereinafter defined, discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0, to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, shall be so treated or otherwise modified as to provide for:

A. Substantially complete removal of settleable solids;

B. Substantially complete removal of oil (in whatever state, including free, emulsified, dispersed and dissolved oils), debris, scum, and other floating materials;

C. Reduction of suspended solids, dissolved solids and other materials to such degree that the discharge will not produce turbidity, color or odor in the river, or impart taste to potable water supplies, or cause the tainting of fish flesh;

D. Reduction of any and all constituent materials to such a degree that the concentration thereof, singly or in combination, in any discharge is not harmful to human health, and reduction of the following chemicals to such a degree that the concentrations thereof in any discharge do not exceed (1) the limits specified in the tabulation below or (2) such lower limits as may be required for compliance with subparagraph (E) of this Pollution Control Standard No. 1-70:

	Limiting concentration (mg/1)
Inorganic chemicals	
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium (hexavalent)	0.05
Lead	0.05
Mercury	0.005
Selenium	0.01
Silver	0.05
Organic chemicals	
Cyanide	0.2
Pesticides	
Aldrin	0.017
Chlordane	0.003
DDT	0.042
Dieldrin	0.017
Endrin	0.001
Heptachlor	0.018
Heptachlor epoxide	0.018
Lindane	0.056
Methoxychlor	0.035
Organic phosphates plus carbamates (as parathion equivalent cholinesterase inhibition)	0.1
Toxaphene	0.005
Herbicides	
2,4-D plus 2,4,5-T plus 2,4,5-TP	0.1

E. Reduction of any material or, if necessary, all materials contained in any discharge which singly or in combination are toxic or harmful to aquatic life to such a degree or degrees that the calculated concentration(s) of such material or materials in the river does not exceed one-twentieth of the 96-hour median tolerance limit (96-hr. TL_m) for aquatic life;

F. Reduction of radioactive materials to such degree that (1) concentrations of *unidentified* radionuclides in the discharge do not exceed (a) 30 pcl or (b) limiting values specified by the Atomic Energy Commission for water in which certain radionuclides are known to be absent, as set forth in Column 2, Table II, Paragraph 3.C, Notes to Appendix B, Title 10, Chapter 1, Code of Federal Regulations (January 1, 1970), or (2) concentrations of *identified* radionuclides in the discharge do not exceed limiting values for water specified by the Atomic Energy Commission, as set forth in Column 2, Table II, Appendix B, Title 10, Chapter 1, Code of Federal Regulations (January 1, 1970);

G. Reduction of fecal coliform bacteria to such degree that (1) during the months of May through October fecal coliform density in the discharge does not exceed 200 per 100 ml as a monthly geometric mean (based on not less than ten samples per month), nor exceed 400 per 100 ml in more than ten percent of the samples examined during a month, and (2) during the months of November through April the density does not exceed 1,000 per 100 ml as a monthly geometric mean (based on not less than ten samples per month), nor exceed 2,000 per 100 ml in more than ten percent of the samples examined during a month;

H. Control of hydrogen ion concentration to such degree that the pH is not less than 5.0 nor greater than 9.0;

I. Reduction in 5-day biochemical-oxygen-demand load (pounds per day) of not less than 92 percent (as a monthly-average value), provided, however, that a lesser degree of reduction may be applied, but not less than 85 percent (monthly-average value), if as a result the biochemical-oxygen-demand (BOD) load does not exceed that amount which will increase the BOD of the river, on a calculated basis, by more than 0.05 milligrams per liter at flows equal to or exceeding "critical" flow values specified in the following table:

River Reach		Critical flow in cfs*
From	To	
Pittsburgh (mi. 0.0)	Willow Is. Dam (161.7)	6,600
Willow Is. Dam (161.7)	Gallipolis Dam (279.2)	7,700
Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,900
Meldahl Dam (436.2)	McAlpine Dam (605.8)	12,100
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,300
Uniontown Dam (846.0)	Smithland Dam (918.5)	20,000
Smithland Dam (918.5)	Cairo Point (981.0)	48,500

*Minimum 7-day flow once in ten years.

J. Reduction of heat content to such degree that the aggregate heat-discharge rate from the municipality, subdivision, institution, installation or corporation, as calculated on the basis of discharge volume and temperature differential (temperature of discharge minus average upstream river temperature), does not exceed the amount calculated by the following formula, provided, however, that in no case shall the aggregate heat-discharge rate be of such magnitude as will result in a calculated increase in river temperature of more than 5 deg. F.;

Allowable heat-discharge rate (Btu/sec) =
62.4 × river flow (cfs) × $(T_A - T_R)$ × 90%

Where:

T_A = Allowable maximum temperature (deg. F.) in the river as specified in the following table:

	T_A		T_A
January	50	July	89
February	50	August	89
March	60	September	87
April	70	October	78
May	80	November	70
June	87	December	57

T_R = River temperature (daily average in deg. F.) upstream from the discharge

River flow = measured flow but not less than critical flow values specified in the following table:

River Reach		Critical flow in cfs*
From	To	
Pittsburgh, Pa. (mi. 0.0)	Willow Is. Dam (161.7)	6,500
Willow Is. Dam (161.7)	Gallipolis Dam (279.2)	7,400
Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,700
Meldahl Dam (436.2)	McAlpine Dam (605.8)	11,900
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,200
Uniontown Dam (846.0)	Smithland Dam (918.5)	19,500
Smithland Dam (918.5)	Cairo Point (981.0)	48,100

*Minimum daily flow once in ten years.

POLLUTION CONTROL STANDARD NO. 2-70

All cooling water from municipalities or political subdivisions, public or private institutions, or installations, or corporations discharged or permitted to flow into the Ohio River from the point of confluence of the Allegheny and Monongahela rivers at Pittsburgh, Pennsylvania, designated as Ohio River mile point 0.0 to Cairo Point, Illinois, located at the confluence of the Ohio and Mississippi rivers, and being 981.0 miles downstream from Pittsburgh, Pennsylvania, shall be so regulated or controlled as to provide for reduction of heat content to such degree that the aggregate heat-discharge rate from the municipality, subdivision, institution, installation or corporation, as calculated on the basis of discharge volume and temperature differential (temperature of discharge minus upstream river temperature) does not exceed the amount calculated by the following formula, provided, however, that in no case shall the aggregate heat-discharge rate be of such magnitude as will result in a calculated increase in river temperature of more than 5 deg. F.:

Allowable heat-discharge rate (Btu/sec) =
$62.4 \times$ river flow (cfs) $\times (T_A - T_R) \times 90\%$

Where:

T_A = Allowable maximum temperature (deg. F.) in the river as specified in the following table:

	T_A		T_A
January	50	July	89
February	50	August	89
March	60	September	87
April	70	October	78
May	80	November	70
June	87	December	57

T_R = River temperature (daily average in deg. F.) upstream from the discharge

River flow = measured flow but not less than critical flow values specified in the following table:

River Reach		Critical flow in cfs*
From	To	
Pittsburgh, Pa. (mi. 0.0)	Willow Is. Dam (161.7)	6,500
Willow Is. Dam (161.7)	Gallipolis Dam (279.2)	7,400
Gallipolis Dam (279.2)	Meldahl Dam (436.2)	9,700
Meldahl Dam (436.2)	McAlpine Dam (605.8)	11,900
McAlpine Dam (605.8)	Uniontown Dam (846.0)	14,200
Uniontown Dam (846.0)	Smithland Dam (918.5)	19,500
Smithland Dam (918.5)	Cairo Point (981.0)	48,100

* Minimum daily flow once in ten years.

MR. HORTON: Thank you, sir.

Now there is one other thing I would like to do. I would like to present rather briefly an example of some of the analyses that we have been making on quality conditions in the Ohio and in this case the Monongahela and the Allegheny; the kinds of analyses that we make to try to determine this question of where do we stand in pollution abatement — are things getting better or worse?

The data I am using comes from the regional monitoring system that was established by the eight States in the valley as far back as 1951. The monitoring program consists of the assembly of stream data, both on a manual basis -- that is the going out and the collecting of samples -- and it also includes monitoring by automatic equipment. At the present time we have some 27 stations that operate automatically and transmit the data hourly into commission headquarters where it is analyzed.

The information I will present is in a series of slides and I have a set, Mr. Chairman, in black and white, for the recorder.

If you will show me the first slide, please. (See p. 480) The curve at the top of the screen there has to do with pH, and that was another surprise in the EPA report. I don't think pH is mentioned at all in that

VISUAL NO. 1

SUBJECT pH- Ohio River

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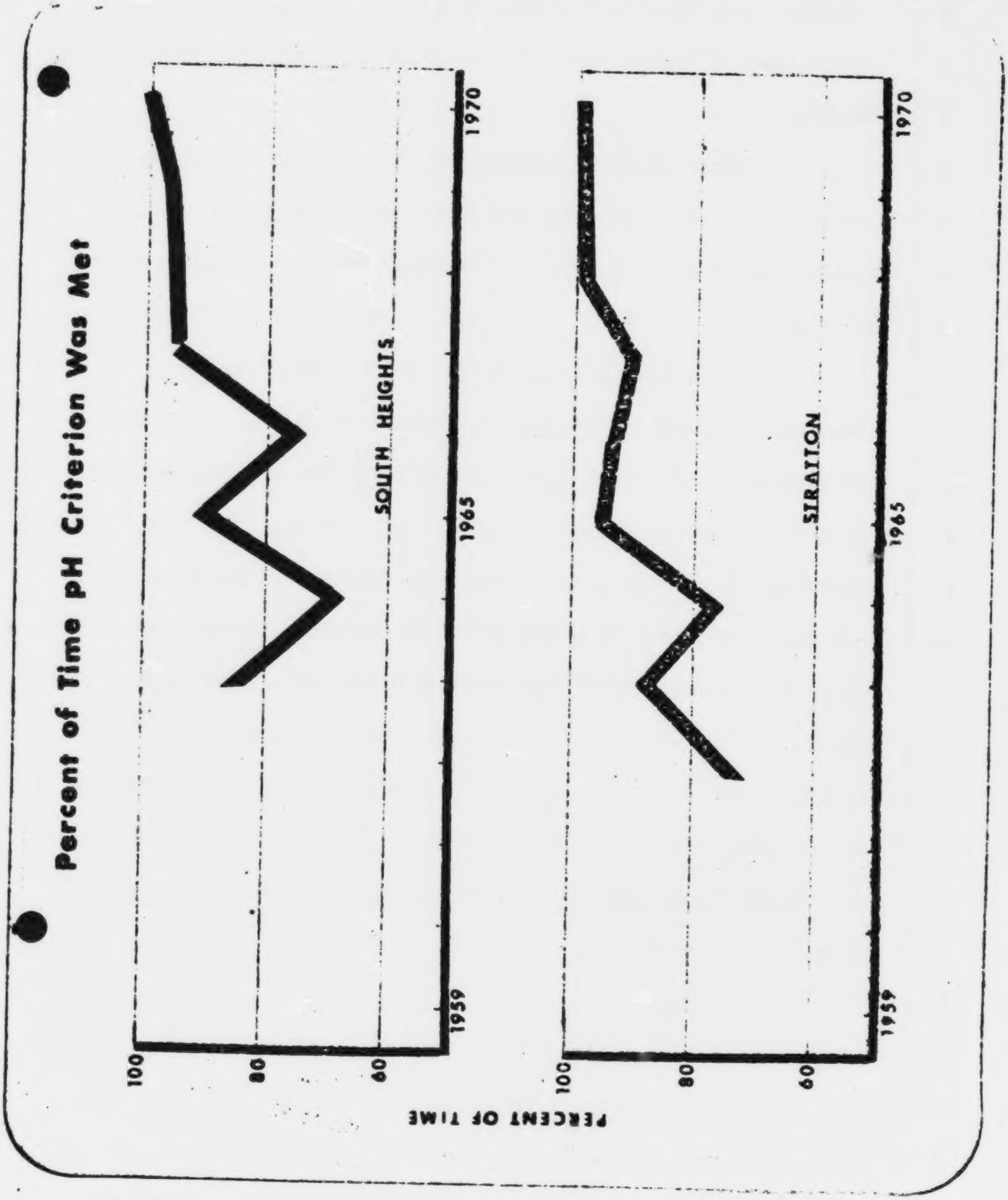
Visual Products Division 3M



NOTES Ohio River Valley Water Sanitation Commission report. And this is certainly one of the most important parameters of water quality in this part of the Ohio River Basin.

What we have attempted to plot on these charts is percent of time criteria was met, and that is plotted on the Y-axis and it is plotted against time in years on the X-axis.

Now to us this is one of the most telling measures we know of to tell us where we stand. Are we meeting the criteria that we said that we want to meet? In this case, as I say, we are talking about pH. The criteria is -- the pH says that pH should be between 6.0 and 8.5. So, are we meeting it or are we not meeting it? Well, the chart shows that in 1963, at this particular station -- and the top station is at South Heights which is on the Ohio River about 16 miles downriver from the point -- in 1963, that criterion -- that is the pH in the river -- was within that desired range for about 85 percent of the time.

Going to the right of the chart, we have plotted out, as I say, the percent of time against each year, and it moves toward 1971 to the right of the chart.

Now, you will see some fluctuations; it goes up and down, and you have to expect this because of variations in year, amount of flow in each year, and many other factors.

But looking at the curve as a whole, I think it shows clearly a definite upward trend, meaning that the percent of time meeting the criteria has been increasing on the average over the years, meaning a gradual improvement in water quality.

The curve on the lower half of the screen is the same kind of information, the pH data, percent of time meeting criteria against the years at our monitoring station at Stratton, Ohio, and Stratton is at Mile 55 which is outside of the area covered by this particular conference, but it is just downstream from the conference area and happens to be the closest monitor station that we have to this particular area.

Again, there are some ups and downs in the curve, but again there is a general trend upward starting from about 70 percent compliance in 1963 up to 100 percent compliance in 1969 and 1970.

Now could I have the next one? (See p. 483) This slide shows two charts. The one at the top shows pH data for Oakmont. Oakmont is a station on the Allegheny River just a few miles upstream from where we sit. Here again there seems to be a steady upward trend, except that from 1969 to 1970 there was a drop, so we don't know whether

VISUAL NO. 2

SUBJECT pH - Allegheny (Oakmont)
Monongahela (Charleroi)

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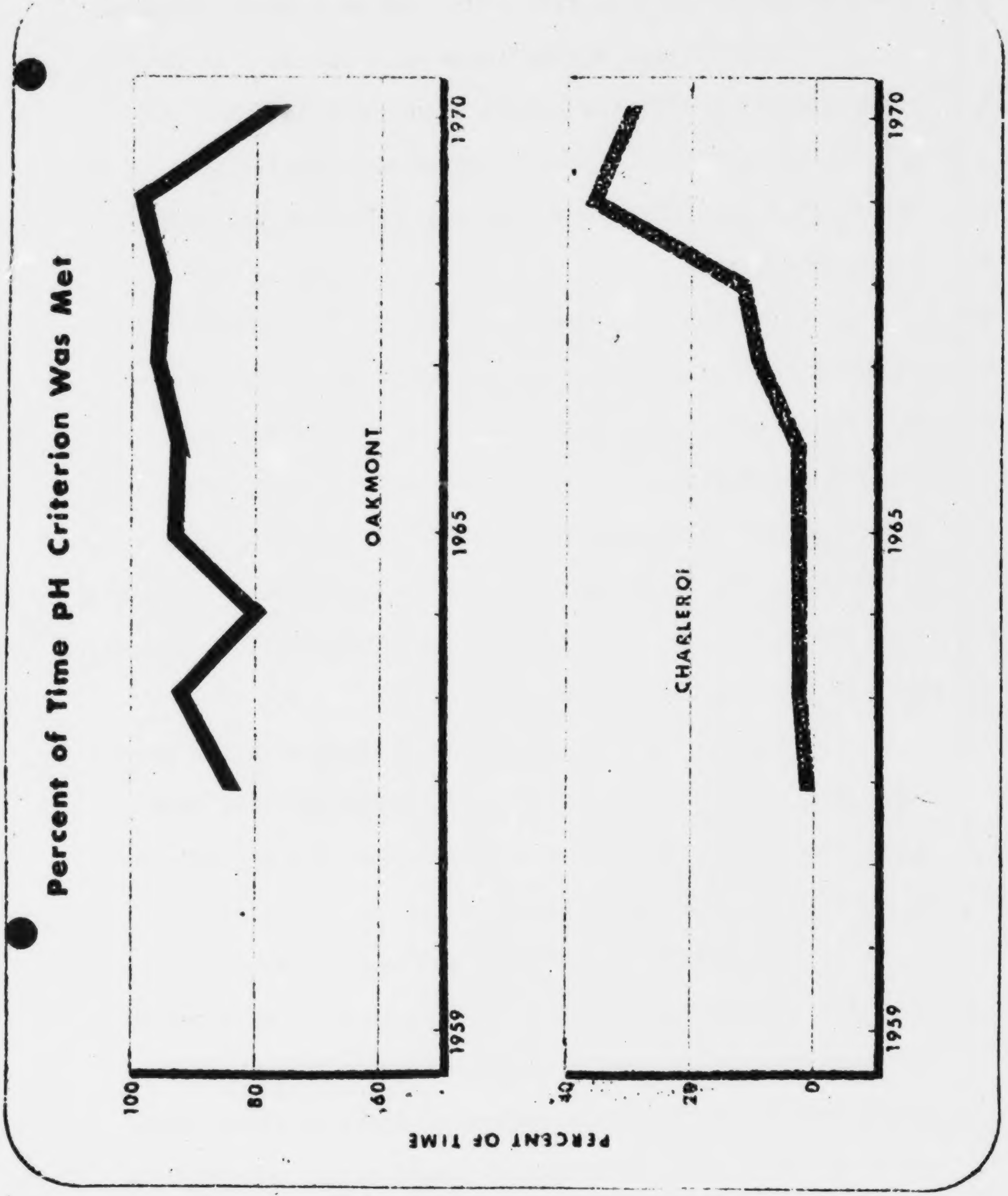


NOTES

Ohio River Valley Water Sanitation Commission
SEP 30 1971

that is a temporary thing or whether it will go back up. But this is the way it occurred.

The chart on the lower half of the slide is data for a monitor station at Charleroi, which is up on the Monongahela River — how many miles, Walter? I don't know.

FROM THE FLOOR: Forty.

MR. HORTON: About 40 miles. And here there is a very dramatic increase or improvement in conditions beginning about 1966.

Give me the next one, Robert. (See p. 485) On this chart, we have plotted coliform data. It happens that our criteria for coliform is expressed in terms of monthly average value. There are other requirements in the specifications, too, but generally it calls for monthly average value of a certain figure. So on the Y-axis instead of plotting percent of time, we just simply plotted number of months -- same thing -- number of months, percent of months.

The top chart shows percent of time meeting the coliform criteria at South Pittsburgh. Frankly, there are ups and downs there, and we can't make out any discernible trend at this station for this particular paramater. It looks like the coliforms with some fluctuation are about at the same level now as they were back in 1962.

VISUAL NO. 3

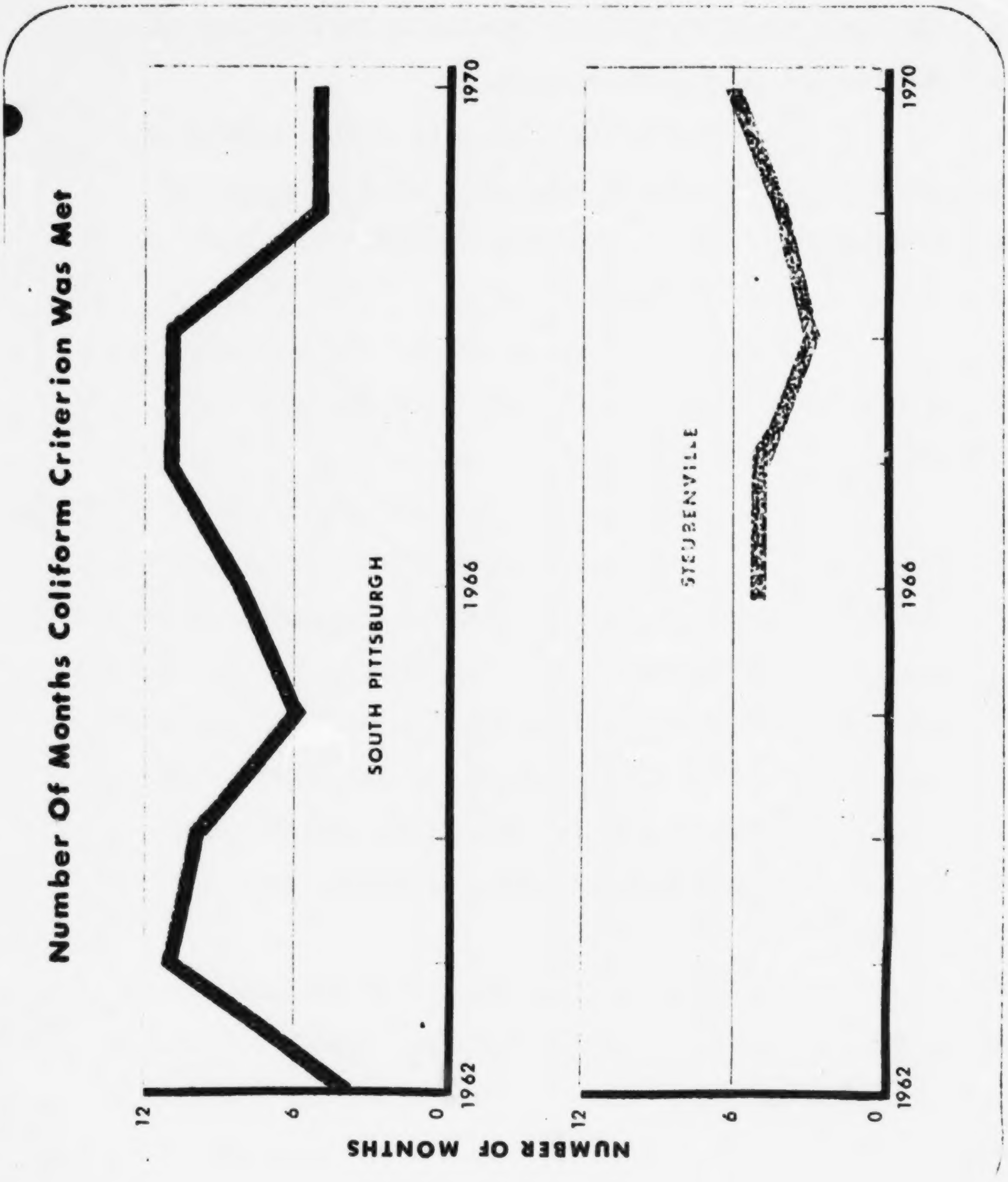
SUBJECT Coliform - Monongahela (South Pittsburgh) Ohio River (Steubenville)

485

"3M BRAND" MOUNTING FRAME

ST. PAUL, MINNESOTA 55101 MADE IN U.S.A. CATALOG NO. 15-1006-4

Visual Products Division 3M



Number Of Months Coliform Criterion Was Met

NOTES Ohio River Valley Water Sanitation Commission

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R. Horton

The curve at the bottom of the slide shows coliform data down at Steubenville, Ohio, which again is the closest monitoring station we have to the area under discussiion at the conference. There seems to be very little change there, too. Some ups and downs, but hardly a discernible trend.

The next slide. (See p. 487) Here we have plotted the dissolved oxygen data. The top chart, again, is the South Heights, 16 miles downriver and, again, there is a steady upward trend.

The bottom chart shows the data at Stratton, Mile 55, and, again, there is a steady upward trend, reaching up to 100 percent the last year or two.

All right. Quickly now. Let's go. (See p. 488) This also is dissolved oxygen data. The top chart is data at Oakmont. The bottom chart is dissolved oxygen at Charleroi. Both charts seem to indicate some improvement back in the early years, the early sixties, and then during the last several years it has been running across at 100 percent.

I just want to show this one, and the next slide. (See p. 489) This is a chart dealing with conductivity, which is a measure of total dissolved solids. The top chart is at South Heights on the Ohio. The bottom chart is at Stratton on the Ohio. There is no trend there

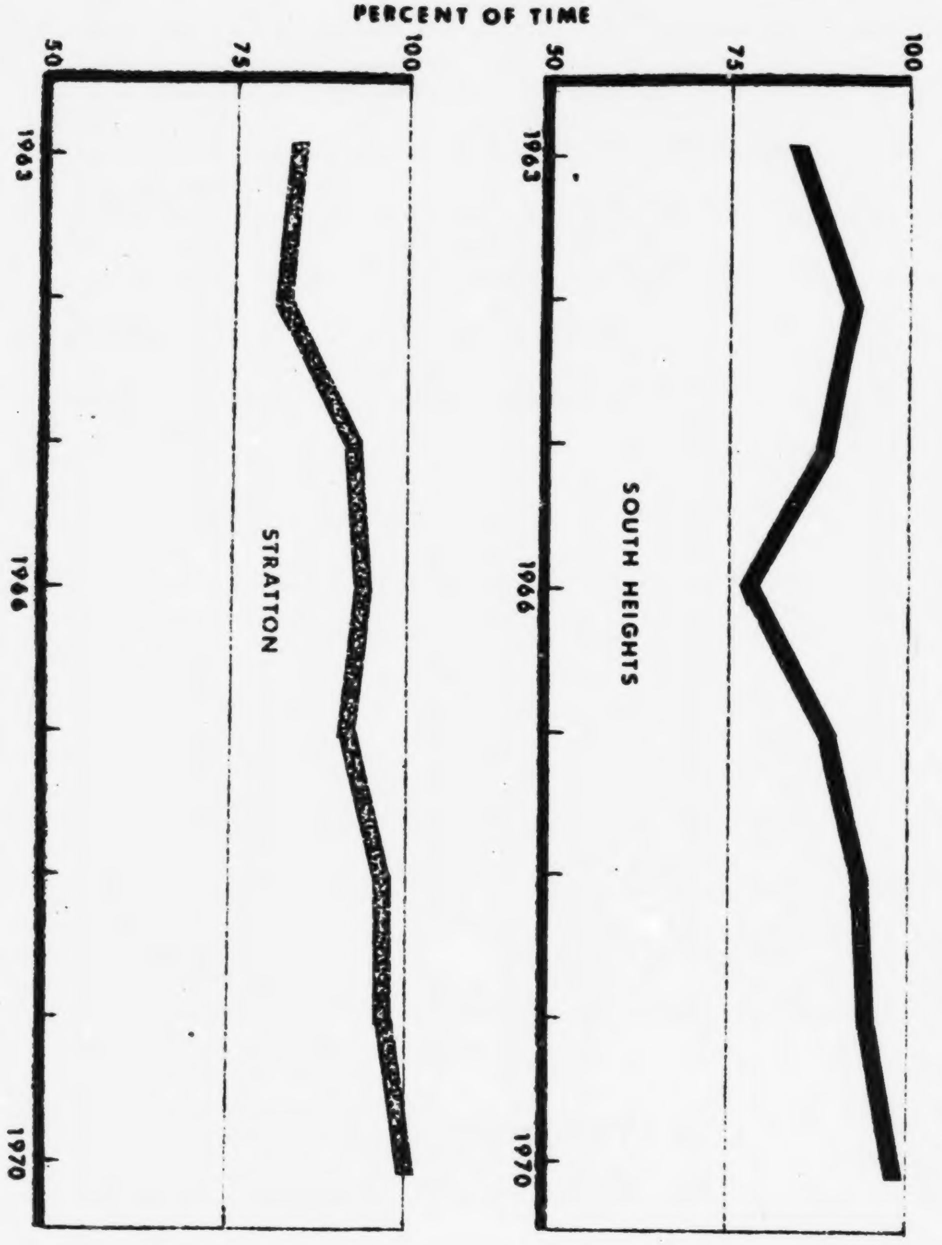
VISUAL NO. 4

SUBJECT DO-Ohio River

"3M BRAND" MOUNTING FRAME

ST. PAUL, MINNESOTA 55101 MADE IN U.S.A. CATALOG NO. 15-1006-4

Visual Products Division 3M



Percent Of Time DO Criterion Was Met

NOTES

Ohio River Valley Water Sanitation Commission

SEP 30 1971

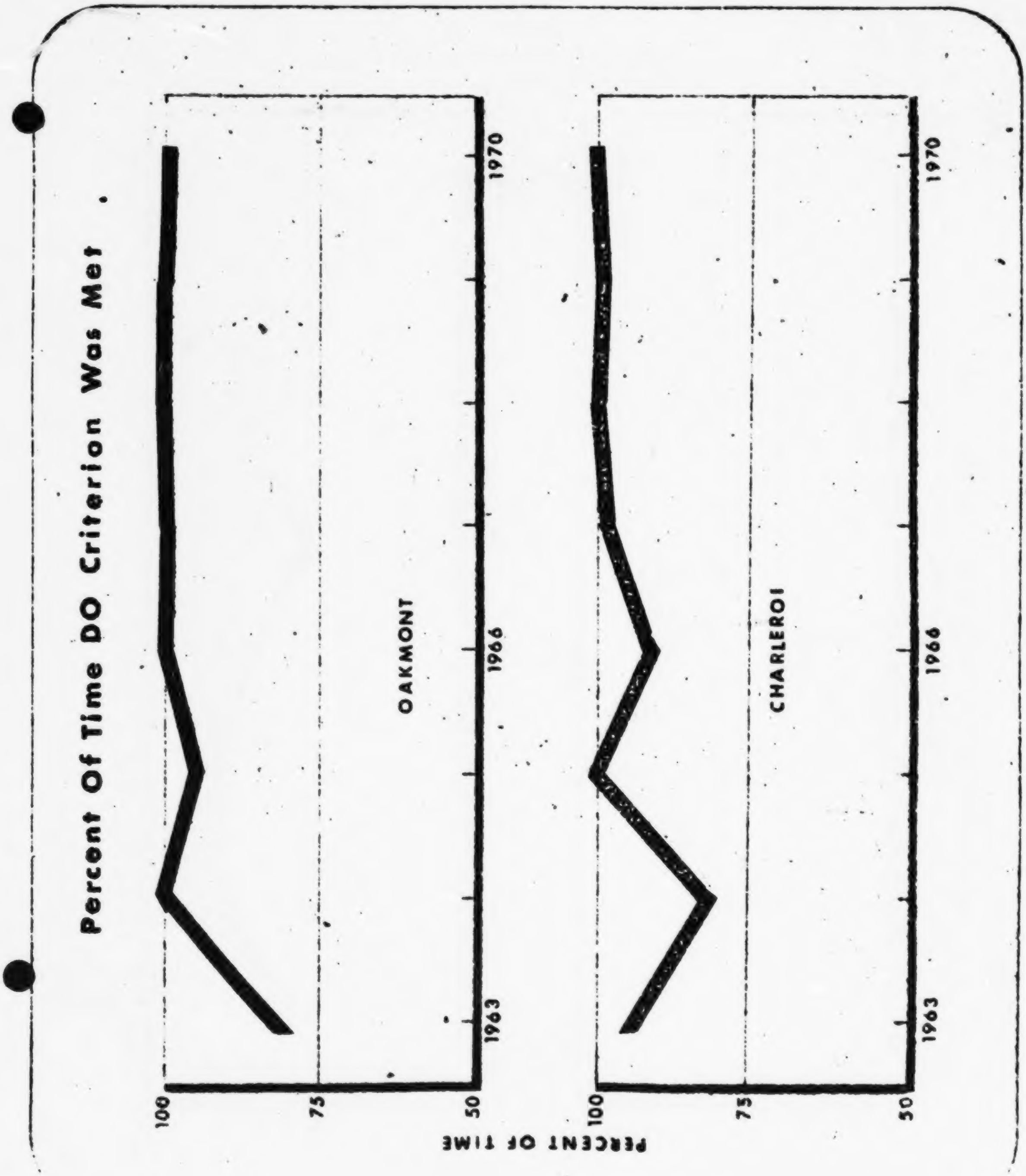
VISUAL NO. 5

SUBJECT DO · ~~TREND~~ Allegheny (Oakmont) Monongahela (Charleroi)

"3M BRAND" MOUNTING FRAME

ST. PAUL, MINNESOTA 55101 MADE IN U.S.A. CATALOG NO. 15-1006-4

Visual Products Division 3M



NOTES

Ohio River Valley Water Sanitation Commission

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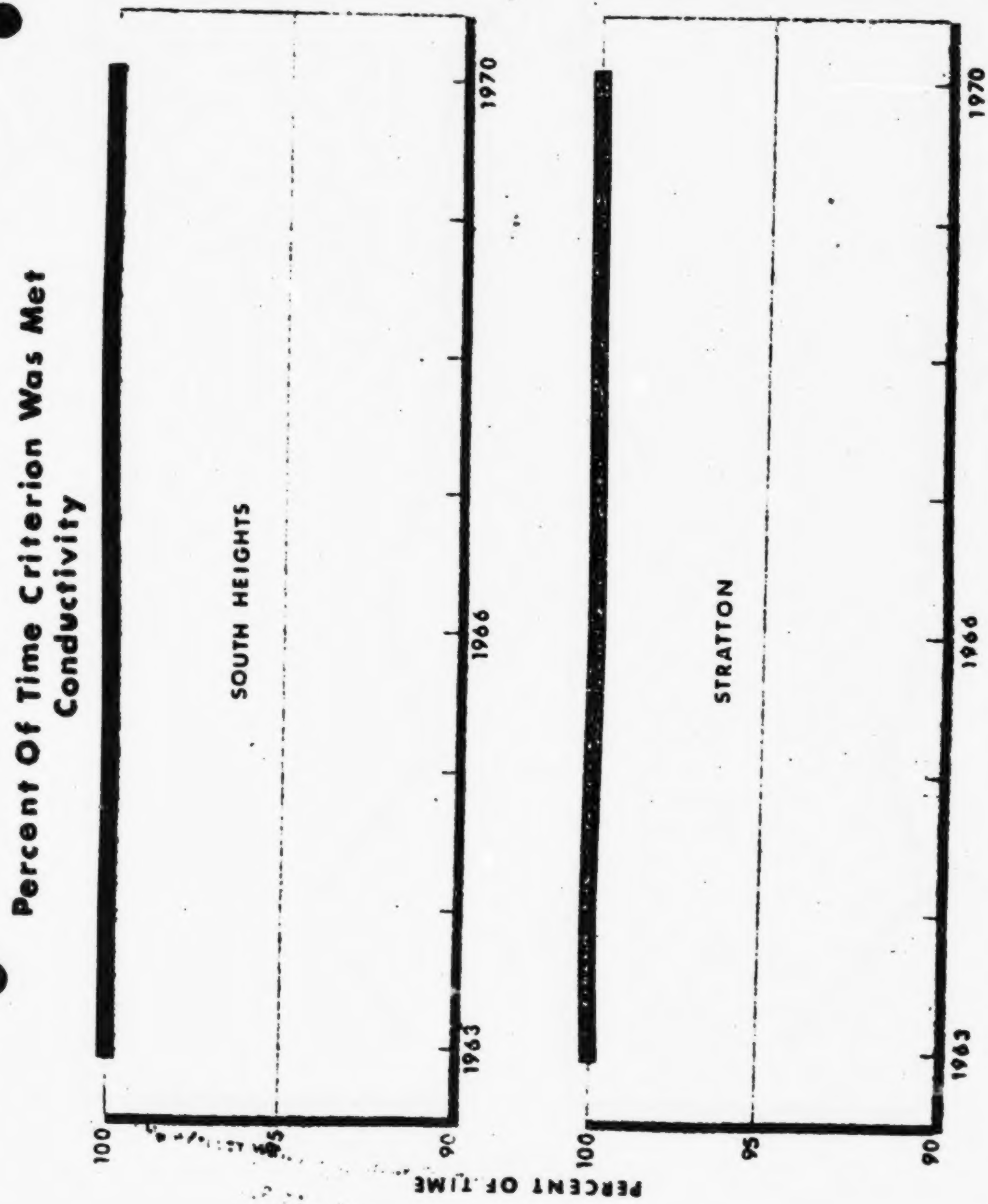
VISUAL NO. 6
SUBJECT Conductivity- Ohio River

489
"3M BRAND" MOUNTING FRAME

ST. PAUL, MINNESOTA 55101 MADE IN U.S.A. CATALOG NO. 15-1006-4

Visual Products Division 3M


Percent Of Time Criterion Was Met
Conductivity

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because — since this particular paramater has been measured, it has been running across at 100 percent all of the time anyhow.

One more chart and I am almost finished. (See p. 491) This is temperature data at those same two Ohio River stations and again there is no trend because we have been meeting the criteria 100 percent of the time over the years.

Thank you for letting me show those.

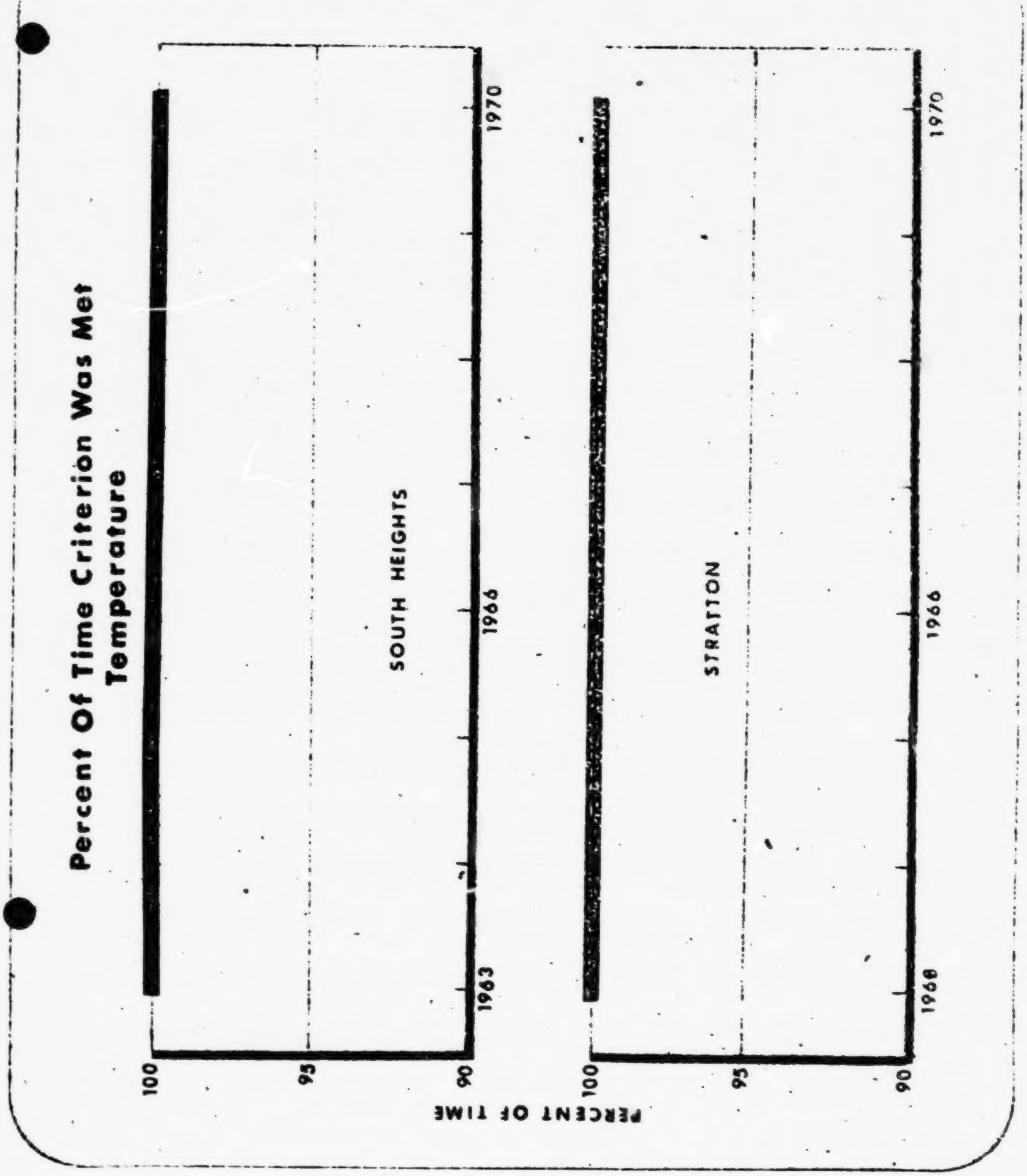
Now, in conclusion, I would just like to make a couple of points, again, about the EPA report. First, there is really very little that is new that we find in it. The conditions that are described there are known and well understood by the States.

The second point is that the Pennsylvania control program which, as I say, is part of the regional program, and which includes provision for implementation of the effluent standards adopted last November -- this program of Pennsylvania actually imposes more stringent controls on waste discharges than are the proposals recommended in the EPA report. And for that reason I will certainly have difficulty in accepting the EPA proposals. To me it would just be a step backward.

The third point, having to do with timetables,

VISUAL NO. 7
SUBJECT Temperature—Ohio River

"3M BRAND" MOUNTING FRAME
ST. PAUL, MINNESOTA 55101 MADE IN U.S.A. CATALOG NO. 15-1006-4
Visual Products Division 3M



Percent Of Time Criterion Was Met
Temperature

NOTES

OHIO RIVER VALLEY WATER SANITATION COMMISSION

SEP 30 1971

under the Federal Act of 1965, as has been mentioned several times, the States were required to adopt criteria and plans of implementation, and all this was done. And the plans of implementation, as I understand them, set cutoff dates.

In other words, the State said: These are our criteria and we will meet them by 1972, 1973, 1974 — whenever.

Well, since then, and in connection with other phases of its program, and certainly on the Ohio River, the State has established detailed timetables for every municipality and every industry on the Ohio River. These are timetables specifying when preliminary plans shall be done, when contracts shall be awarded and construction started, etc.

Now these timetables are developed by the States but they are under, I should say, constant review by the interstate commission. And in fact, the commission met only last week at which time it reviewed the timetables for the six States on the Ohio River, and it actually got into the details of six specific cases where there had been some difficulty in extracting from the industry or the municipality its detailed timetable.

Well, I make this point simply to say that these timetables are developed and are available as public information, and they certainly have been available to a representative of EPA who attends our commission meetings.

In view, then, of these considerations, I would just like to summarize four points which we feel are — well, that might be recommendations of this conference, or certainly should be considered, and they parallel those that were submitted yesterday by Mr. Lyon as his suggestion on recommendations from Pennsylvania.

First of all, as I said, I don't think that the proposed control regulations in the EPA report should be accepted because, as I say, we already have more stringent controls.

I think that cognizance should be taken of the program that is being pursued by the Commonwealth of Pennsylvania and by the progress that has been made here.

I think further that changes in any water quality standards for the Ohio River and — I certainly am not a lawyer but I certainly appreciate the points that Mr. Eichbaum has made about the handling of standards and how they are to be changed. So I think that the changes in standards — and I believe as he suggested — either should be done through the ORSANCO mechanism or through the procedures outlined in Section 10 (c) of the Federal Water

Pollution Control Act.

I think also, and I would like to suggest, that EPA be requested to seek congressional appropriations that could be used as grants-in-aid to the States in advancing programs for the control of pollution from abandoned mines. Certainly, as Mr. Lyon said yesterday, this is a dominating influence, and really you are not going to really get the river cleaned up until we get at the abandoned mine problem. So we feel that some effort should be made to get funds for this purpose, and to further aid the States in the preparation of comprehensive water quality and management plans as required under 18 CFR 601.32-33.

And finally, we feel that, as Mr. Lyon does, this conference should be discontinued.

Thank you, Mr. Chairman.

MR. STEIN: Thank you.

Are there any comments or questions?

MR. RILEY: Yes.

I would like first to call upon Mr. West to speak on a couple of items on the Federal report, particularly with regard to the temperature question you raised, and then I would like to address several of your five points there.

Mr. West.

MR. WEST: Okay. First of all, I would like to open that there have been several attacks made on this report, and the attacks are more or less of a personal nature. It borders more or less upon professional ethics.

When it comes to writing a report, to call it interstate pollution on the Ohio River, what we are faced with is to write down what the pollution is. Now, as Mr. Horton is probably aware, there are many, many paramaters, if you will, by which you can measure pollution. Now for me to include in a report or to stand up here and read every paramater that has ever been run on water, and to explain that it hasn't been exceeded, would be more or less boring to everyone, I am sure. For that reason, the pH was not mentioned, at the state line, because there wasn't a problem with pH at the state line. There is a problem with coliforms, phenols, cyanides, and, of course, in the report we did describe this.

Now, as far as the question came up from untreated sewage--what was said--stated in the report--was that there was an organic and nitrogenous sludge in the Ohio River, that it is derived from either untreated or insufficiently treated wastewaters.

Now Mrs. Coyne just alluded to a problem with stormwater overflow. Now, in all fairness, we could not state that the sludge in the Ohio River -- it is from just partially treated sewerage. We know -- and if Mr. Wald was here he would explain that even their plant over there, when it comes to stormwater runoff, that they discharge untreated sewerage into the Ohio River. And I don't think there is anyone here that can deny that.

As far as the heated discharges -- what we were trying to do as far as up on the Monongahela River -- we were trying to point out that the rate at which heat is added to the Monongahela River presently exceeds the standards.

I will ask Mr. Stein if I can later supply the information that we had in our Wheeling field office that shows that the change in temperature in the Monongahela River -- at a flow of 2,000 cfs, actual measurements -- raised the temperature of the Monongahela River by 11°.

MR. STEIN: I have indicated that the record will be open for a week for everyone, that includes you.

MR. WEST: Well, I don't want to quote the numbers off my head, and I would rather have them -- a report submitted and made a record of the conference.

One other point. Mr. Hall, from the State of West Virginia, at one time explained that there is not a problem with the Chester water intake. I agree with Mr.

Hall because the Chester water intake is a Ranney well intake; it is not a surface water intake. So, therefore, I would not expect it to have the problems that, say, the East Liverpool plant would have.

That is all I have to say.

MR. STEIN: Do you want to answer?

MR. HALL: Yes.

The Ranney well discussion that Mr. West is referring to — true, it is a well; it sets right on the edge of the river. At one time, before the pools were raised, it set back into the Blue Hill and acted as a well.

The Health Department tells me that it is for all purposes the same as a raw water intake.

MR. HORTON: Mr. Chairman, may --

MR. STEIN: Okay. Mr. Horton.

MR. HORTON: May I ask Mr. West a question?

MR. STEIN: Surely.

MR. HORTON: Just so I understand you, Bill -- and I will get at it this way: On page 54 in the report, Table 11; and page 62, Table 12 of the report; you give tables showing coliform data, and a table showing phenol data. And it says that this represents selected data from 35 months of river sampling.

Now from what you have just said, I am guessing that when you did this 35 months of river sampling, you did a lot more analyses than just coliforms and phenols.

MR. WEST: Yes, sir. I don't have the list of the normal paramaters examined throughout every month.

MR. HORTON: But you did --

MR. WEST: I would say that I am sure that the paramaters existing that we run more or less normally would range probably in the order of 35 different parameters.

MR. HORTON: Well, that is what I had guessed; and so from what you have said now, are we to assume that all of the others, except these two, there is no problem with? I thought you said that you only directed your attention to things where there was a problem.

MR. WEST: There is one other -- well, there are actually two parameters that I think that are excessively high that are not mentioned in the report and they should have been included, and one of them was the cyanide concentrations at the state line, and the concentrations of ammonia at the state line.

MR. HORTON: Well, I certainly agree with that.

MR. STEIN: Are there any other comments or questions?

MR. LYON: Yes, Mr. Chairman, particularly since the subject of coliform bacteria has come up. On page 51 of the report, Mr. West, you talk about fecal coliform bacteria. Why did you bring that subject up?

MR. WEST: The reason the fecal coliform was brought in -- and, of course, this discussion has been going on for several years within the ORSANCO organization -- is that there are many people that feel that the total coliform bacteria test is not quite sufficient as an indicator, and that the fecal coliform might be a better indicator of bacterial pollution.

MR. LYON: Well, if it isn't sufficient as an indicator of bacterial pollution, why did you use it?

MR. WEST: Because the State of Pennsylvania, the State of Ohio, and the State of West Virginia had submitted in their water quality standards the total coliform as the indicator of bacterial pollution.

I don't feel that I could actually change this in all fairness and come to the conference and hit you with fecal coliforms which you have no real limit on right now.

MR. LYON: Well, I just wanted to make sure that we had in the record that Mr. West doesn't think that coliform bacteria are a good indicator of pollution. We agree with that. We agree that fecal coliform are a better indicator of pollution.

I have one other question. You had some

predictions that Mr. Horton referred to with respect to the growth in the electric industry in your report, isn't that correct?

MR. WEST: Yes, sir.

MR. LYON: Are you aware of what Pennsylvania has done with regard to the temperature problem concerning generating stations?

MR. WEST: Are you talking about the Beaver powerplant?

MR. LYON: No, I am talking about all powerplants.

MR. WEST: Well, yes. I know what your heated waste discharge requirement is. But I feel that the two power stations on the Monongahela River are presently exceeding your and our water quality standards.

MR. LYON: When did those power stations go in?

MR. WEST: I don't know. You will have to ask somebody from Duquesne Light.

MR. LYON: Are you aware of the fact -- and I am referring back to the predictions that you have made of what this will do -- the growth in the power industry -- are you aware of the fact that not a single power station has been built in Pennsylvania in the last 3 years without having cooling towers?

MR. WEST: I can't say that I am aware of that for the entire State. I am aware of it in the Ohio River Basin portion of the State.

MR. LYON: Don't you think that would be sort of an important fact to put in your report?

MR. WEST: You know, I don't understand, Mr. Lyon, that you feel that I should have gone back to the year 1 -- whenever the year 1 was -- and to delineate everything that has been done in the Ohio River area since I don't know when. We talk about a long, involved thing -- I don't feel where that is necessary.

MR. LYON: Well, then, if it isn't, what is the purpose of your report?

MR. RILEY: Bill, let me speak to that.

This is a Federal enforcement conference. The purpose of this report is to document the existence of interstate pollution; that we have done. We are here at this conference to determine whether or not the measures proposed or in progress to solve the pollution here are in fact adequate. And that is what we should be addressing ourselves to.

Now our report documents that pollution. It does not, as you have pointed out, spell out a history of the measures taken. That is not the intent of the report.

MR. LYON: It neither reports the history of the measures taken nor does it report on the measures that are in progress.

MR. RILEY: I just said that, Mr. Lyon.

MR. STEIN: You people can develop this any way you wish, but I think we are possibly going over the same ground or making the same point that was made before.

MR. RILEY: I will agree with that.

MR. STEIN: Are there any other comments or questions?

MR. RILEY: Basically I wanted to defend the intent of the Federal report. That is all.

MR. STEIN: Mr. Lyon.

MR. LYON: I just want to comment, Mr. Chairman, that the purpose of anything we do jointly -- State or Federal -- is to clean up this river, and I would say that any report about pollution of any river that doesn't talk about what is being done to clean it up is defective.

MR. WEST: Mr. Lyon, are the Elrama plants and Mitchell powerplants -- are they being required to do anything about the heated waste going into the Monongahela River?

MR. LYON: Any powerplant in Pennsylvania that is violating our criteria either is or will be required to meet our criteria.

MR. STEIN: Is the answer yes? I didn't quite get your answer.

MR. LYON: Well, we will be happy to provide you with that information either now or at some time later. I don't know whether we have it here or not. Do we have it here? No. We will be happy to provide you with that information again. I am sure we have done this before.

Before the conference closes, I would like to put into the record a rather intensive effort to provide you with this kind of information in the past. At the appropriate time, I would like to do this, Mr. Chairman.

MR. STEIN: At this point, we will go back to Pennsylvania. But before we do that, let me go off the record.

(Discussion off the record.)

MR. STEIN: May we reconvene, please?

MR. EICHBAUM: Mr. Chairman, I would like, picking up from Mr. Riley's comments just a minute ago, to try and focus maybe more specifically than we have what the enforcement posture is at this point in time in Pennsylvania.

I assume that the review which EPA made of the department files in the last couple of months -- the summaries of which I have here -- contains those cases in which EPA thinks there is an enforcement problem.

MR. RILEY: Well --

MR. EICHBAUM: Maybe there are other cases in addition to these -- I don't know -- but this is what you found as a result of the analysis of our files of which, as I indicated, there are about 40.

For the record -- and I haven't done the statistics -- but of those 40-some cases, probably over half of them are in compliance, which probably you could work through a more thorough investigation of our files and where we stand.

Of the remaining 20, approximately, which are not in compliance, as I indicated yesterday, we have in the past -- we have a list here of what we call the cases that aren't in compliance, which is about 80 cases, which is more than you found. Of those 80 cases, they include all of the cases which you, EPA, determined that were enforcement problems and in fact we agree that they are enforcement problems. Those 20 are included in the 80.

Of that 80, as I indicated yesterday, in the last year to date, we have taken enforcement action in 50 -- enforcement action meaning not issuing an order but meaning filing a lawsuit or holding an administrative hearing and getting an adjudication or entering into a negotiated stipulation with the party.

Of those 50, about 4 or 5 of the 20 are included in the 50 where we are already -- we have completed the process. For example, Crucible Steel, as I pointed out yesterday. The remainder are in the 30 which we are in the process right now of taking various kinds of enforcement action on.

So if you start with your list, we are working with those cases towards achieving the compliance with what is a fairly aggressive and we think effective enforcement program, which makes significant use of the courts and the other mechanisms we have available.

I just wanted to try and somewhat get that on the record.

MR. RILEY: I am not in disagreement with you. I just want to say that the report that you are referring to is a staff report by our water quality standards people, as I told you yesterday.

MR. EICHBAUM: Right.

MR. RILEY: And it was their report to our enforcement department --

MR. EICHBAUM: I would imagine, as you said that --

MR. RILEY: -- prior to any enforcement action by our enforcement division, contact would first be made with you.

MR. STEIN: Let me make an observation here and I think we can both save time. I think possibly the approach for Pennsylvania and us, if you had 80 cases, the easiest thing to do would have been to go to Pennsylvania, and you could have given us the 80 cases, isn't that so?

MR. EICHBAUM: If somebody had come and asked me.

MR. STEIN: That's right. I think that is what we should do.

MR. RILEY: The next step in the logical procedure --

MR. EICHBAUM: Our job is to enforce the law, and we have a limited staff and one of the problems is how much of our time do we spend in coordination and consulting and going to EPA. And I, quite frankly, think you have got a lot more money and that is your job to come to us and get the information.

MR. RILEY: Well, that is what we did. Our standards people went to Mr. Lyon's office to obtain that data and I'd say the next step was for me to go to your office to substantiate this.

MR. EICHBAUM: I would like you to assign about two administrative people to gather the data.

MR. RILEY: With regard to the numbers we are talking about here -- these numbers of cases that you are taking action on or had taken action on, were any of these cases involving intrastate waters as opposed to inter- or were they all interstate cases?

MR. EICHBAUM: No, the cases that I have mentioned are only cases which are on the watershed that we are concerned with.

MR. STEIN: May I make a suggestion?

MR. EICHBAUM: We have taken a number of enforcement actions up on the Beaver and other rivers. They don't include those.

MR. RILEY: We can get together later on that.

MR. STEIN: Right.

MR. LYON: Mr. Chairman, throughout this conference and in calling it, the allegation has been made that this conference is needed to establish construction schedules with interim dates. That term is used in the calling of the conference by Mr. Ruckelshaus and throughout the conference. Again, the allegation has been made that Pennsylvania has not either submitted the schedules or that the schedules are behind.

The Federal report does not list a single specific case where allegedly Pennsylvania's schedules are behind. There may be some. But it doesn't list them.

On a number of occasions, we have tried to get this information to EPA. We have given it to EPA in a number of formats. But one of the problems -- well, there appear to be two problems: 1) one frankly is one that EPA has many staff members and there seems to be possibly a problem in coordination; 2) there is another problem; it is a very real problem that we all I think have to learn to live with. We are living with a very dynamic system. Violators come into compliance and they go back into violation, and the picture changes very quickly. Even in connection with cases where enforcement action is taken, the picture changes very quickly from day to day.

We have a computer system and you helped us develop it with EPA money. EPA has a computer system. There is no connection. We have tried to get you to develop a national system, as I said earlier, but so far that has not been accomplished. We have urged you to develop computer programs that provide the capability for one computer to talk to the other. That, too, has not been done.

I would like to read for the record the efforts that we have made to get you the information that you want -- and this is only in the recent past.

MR. STEIN: Mr. Lyon, may I make a suggestion in the interim? I have found that we can get something to work, while you are waiting for one computer to talk to another. If we can get one lawyer to talk to another, we sometimes can do as well as the computers.

MR. LYON: Well, that sounds like a very fine platitude, but it doesn't solve our problem.

MR. STEIN: It is not a fine platitude. It is a question of let's get together on the information.

I don't see in the particularly few cases -- relatively few cases -- that enforcement is concerned with, particularly in the State, and those which could possibly have a Federal interest and Federal jurisdiction, that just checking the facts out can do it.

And the reason I say that is, in my experience with our own computers, I have always found that for enforcement purposes or purposes of taking legal action, that the computer did not answer all of the questions. We had to go out and do a little more work, so we will get the human story in this a little.

MR. LYON: Okay. Let's talk about the human story for a moment, and let me read into the record just a summary of our efforts in this connection.

In April of 1971, Messrs. Bisher and Brown, who had already received some of the Federal forms with schedules that we had filled out, asked for more information -- wait a minute -- no, I am sorry.

In March of 1970, a meeting was held with Messrs. Blaisdell and Tinsley to discuss the difficulty EPA allegedly was having getting information from Pennsylvania. We agreed to fill out the Federal forms and provide the information.

On May 22, 1970, a letter from me to Mr. Blaisdell explained the type of information that we would provide and included the names and types and categories.

On May 25, 1970, Mr. McGarver from our staff sent the industrial waste and municipal needs list, which was requested, to Mr. Blaisdell.

On June 23, 1970, a letter came back from Mr. Blaisdell to me saying the information was inadequate, and we were told that we did not provide the information that was agreed at the meeting.

I wrote a letter to Mr. Blaisdell on July 3, 1970, saying that we want to cooperate, we want to meet with you and make sure that we get you all of the information that you need.

We brought our field staff into the office -- this cut out many inspections that we wanted to make. We again filled out the Federal forms and submitted them. That effort, by the way, required 1,100 State man-hours.

In August 1970, all of this data was submitted to

EPA. In November 1970, Mr. Warren Carter, a different person again, said that there was some shortages in the data. We asked for a list of the shortages, and on April 15 met with two different people, Mr. Bisher and Mr. Brown, and went over specifically 200 cases where allegedly there was not sufficient information.

I personally spoke to Mr. Brown on a number of occasions and asked him whether or not he was getting the information that he needed. He said, "Yes, we are getting that information we need."

On July 8, 1971, we had a meeting with EPA staff. EPA said they still didn't have adequate information. We asked again for a list of the cases where adequate information had not been submitted, and we were given a list of 120 cases.

This, by the way, is a list that you have here and that Mr. Eichbaum was talking about, many of which already are in compliance.

We offered this information to Mr. Bisher on September 7 of this year, and he said he didn't want it. We had a new set of forms to fill out; a complete whole new effort had to be made, and if we did not make it, Pennsylvania would not get its program grant.

We again agreed to make a massive effort to get you this information. In September, your office promised to send us the forms indicating the missing information. A month has passed; the forms have not arrived. We have already lost a month. We promised to provide this information by February. I am not sure we will be able to do that if you don't get the forms to us.

This information Mr. Bisher did not want. This is the information he originally said he didn't have. It is here now. We have commented on all your comments, and if you would like to make it part of the record — this only, of course, is that portion which refers to this conference area — I will be happy to give it to you now. Here it is.

We try to cooperate with the Federal Government. We will continue to try. But frankly it is sort of tough.

MR. STEIN: We will accept this as an exhibit.

(The document referred to above is on file at HQ, EPA, Washington, D.C. and Region III, Philadelphia, Pennsylvania.)

MR. STEIN: Now before I throw this open to comment again, I would like to call attention to the comments of many of the citizens groups here about this bureaucratic hairsplitting. And anyone can proceed the way they want.

Are there any comments?

MR. RILEY: Yes, I have a number of comments.

As Mr. Lyon indicated, there has been a great deal of letters and back and forth and meetings with regard to the implementation plans.

We have consistently told Mr. Lyon that we need complete implementation plan schedules for all discharges to interstate streams in order to make the water quality standard implementation plan complete.

On occasion after occasion the information submitted was not complete. In some cases, there was an end date by when a facility was to be constructed. There were no interim dates, such as when plans and specifications were to be prepared, when construction was to start. And again as I say with regard to some discharges, complete information was there, but as a total package it was not complete.

This sort of information is needed by Federal law to make up a complete water quality standard implementation plan. First, we must know the status of each of the discharges.

I realize Mr. Lyon's problem is staff. We have the same thing. What we are attempting to do is to get all discharges on schedule; and secondly to determine their status with these schedules.

In some cases, these dischargers have installed the necessary facilities since the inception of the standards, and this is fine. This is the kind of information we want to know. But our problem that we have had here, Walt, is that we need complete information including interim dates.

MR. STEIN: Again, let me say, I think you are getting into details on administration of the standards program, which is a little different from what we need to deal with here. I am not going to cut this off, but I hope that we would not prolong this discussion because I think the points are made. I would like to continue with something that would be useful to the conferees in discharging their duties here.

MR. LYON: Well, Mr. Chairman, I have got a very simple comment to the Federal conferee's comment. We have presented evidence and so had Mr. Horton that not only do we have an active program but the streams are getting cleaner. Your concern is with filling out forms. Frankly, we are interested in getting the streams cleaned up.

MR. RILEY: Sir, we are interested in complying with the law also.

MR. EICHBAUM: I just want to put the EPA on notice now that the preparation by my staff of attorneys, which is two for western Pennsylvania for this conference, has taken about a total of 40 hours, plus it has taken about a total of 30 or 35 of my hours. I don't intend to do that again. I don't intend to have my attorneys spend an undue amount of time gathering information for EPA.

We have an ongoing enforcement program. That is the job that I am charged to do with the State legislature.

If EPA wants this information, if they think they have to have it in order to completely fill out their plans, fine. But they are going to have to come and get it, and they are going to have to provide the manpower or the money to the State to provide the manpower to give it to them. But I am not taking my lawyers to fill out forms and to give information to EPA when they can much better be using that time to file lawsuits.

MR. STEIN: Do you want to go on?

MR. RILEY: Our position has been stated.

MR. STEIN: Mr. Lyon, don't you have some people to call on?

MR. LYON: Is Mr. Rosenfeld here?

MR. ROSENFELD: Right here, sir.

STATEMENT OF CHARLES L. ROSENFELD,
GRADUATE FELLOW, DEPARTMENT OF GEOGRAPHY,
UNIVERSITY OF PITTSBURGH,
PITTSBURGH, PENNSYLVANIA

MR. ROSENFELD: Thank you very much.

Mr. Chairman, conferees, ladies and gentlemen. In order to give direction to regional environmental cleanup campaigns, interested parties should be equipped with a concise evaluation of river sites especially those with recreational potentional.

We, the members of the Gamma Theta Upsilon geographic honorary society at the University of Pittsburgh, wish to aid in this respect by offering our services in preparing a comprehensive study of the three rivers region.

We wish to submit to you a proposal for the quantitative evaluation of river recreation sites along the three rivers designed to give a priority ranking to sites according to 49 objective paramaters which describe the human use and interest potential of these sites along with their physical limitations.

The study does not limit itself to a list of ideal locations for varying purposes, but extends itself to inventorying a wide range of development factors through the region, and delineates specific "development zones" in order to provide a more congruent approach to river resource planning.

Some of you may be rather skeptical of unsolicited project proposals. However, let me assure you that we are not private consultants encouraged by a profit motive but are graduate students with a concern for resource management who hope to use this project as an academic challenge and a means of supporting our studies.

Therefore, the society is appealing to all concerned agencies and organizations for their sponsorship by underwriting the cost of this study which is approximately $7,000.

I am prepared to distribute a limited number of project proposals to the conferees and interested organizations. We would sincerely appreciate any opportunity to give you a personal presentation of the project and are at your disposal in this respect. We hope that we can bring to your attention the wide range of services proposed herein as well as the precisely defined methodology which we have developed specifically for this project.

In conclusion, I wish to present the conference a copy of this proposal for inclusion in the record.

Thank you very much.

MR. LYON: Thank you very much, Mr. Rosenfeld. We are certainly encouraged by the kind of support you want to give our program.

MR. ROSENFELD: Thank you.

MR. STEIN: Thank you. I think I should say -- I am not sure about the State conferees, but the Federal Government is a big place, and I suggest that if you are interested in a grant of this kind, you get in touch with our regional office representatives here, who will direct you to the person in the region that handles applications of this kind.

MR. ROSENFELD: Fine. Thank you, Mr. Chairman.

MR. STEIN: Thank you.

(The documents referred to by Mr. Rosenfeld follow in their entirety.)

Department of Geography
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

September 29, 1971

Dear sirs:

In order to give direction to local river clean-up campaigns interested parties should be equipped with a concise evaluation of river sites, especially those with recreational potential. We, the members of the Gamma Theta Upsilon geographic honorary society at the University of Pittsburgh, wish to aid in this respect by offering our professional services in preparing a comprehensive study of the three rivers region.

We wish to submit to you a proposal for the quantitative evaluation of river recreation sites along the three rivers, designed to give a priority ranking to site according to forty-nine objective parameters which describe the human use and interest potential of sites along with their physical limitations. The study does not limit itself to a list of ideal locations for varying purposes, but extends itself to inventorying a wide range of development factors throughout the region and delimits specific 'development zones' in order to provide a more congruent approach to river resource planning.

Some of you may be rather skeptical of unsolicited project proposals, however, let me assure you that we are not private consultants encouraged by a profit motive, we are graduate students with a concern for resource management who hope to use this project both as an acedemic challange and as a means of helping to sustain our studies. Therefore, the society is appealing to all concerned individuals and organizations for their sponsorship by underwriting the cost of this study.

We would sincerely appreciate any opportunity to give you a personal presentation of the project, and are at your disposal in this respect. We hope that we can bring to your attention the wide range of services proposed herein, as well as the precisely defined methodology which we have developed specifically for this project. Hopefully, you will find that this project meets both the needs and budget of your organization.

Very truly yours,

C Rosenfeld

Charles L. Rosenfeld
Graduate Fellow
Department of Geography
University of Pittsburgh

"QUANTITIVE EVALUATION OF RIVER RECREATION SITES"

Scope of Services

Gamma Theta Upsilon Geographic Honorary Society

The following text is accompanied by five tables which illustrate the precise methodology which has been developed and tested for this project, minor changes may be expected which reflect additional inputs, however the project is fully operable in its present form.

METHODOLOGY.

The quantitative evaluation of river sites as outlined in this proposal consists of both a factorial ranking for the assessment of a wide variety of aesthetic and physical parameters, and a factor analysis section which graphically groups and classifies sites having similar characters.

The factorial ranking section describes objectively the various components of the cultural and physical landscape according to the parameters listed on Tables I, II, and III. Each parameter has five columns which correspond to different levels of prominence at a specific site, but in no way effects the evaluation of site quality. Table IV in the example provided illustrates the manner in which the objectivity of the evaluation is preserved: the sites are rated as to the "uniqueness" of their attributes, that is to say their "rare qualities" which make them desirable as a recreational site. Each set of parameters are sub-totaled to illustrate the uniqueness of their human interest, physical, and biological factors separately, thus pointing out the special amenities of each site which should be preserved.

The graphic factor analysis section is illustrated by Table V, these graphs demonstrate how certain combinations of parameters combine to create overall impressions or "characters." The characters are recorded along a scale, and when many sites are plotted by this method certain groups or clusters of points are formed creating a natural classification. Such classifications are extremely useful, such as in zoning certain segments of the rivers for specific uses. For example, the scale of river character (Table V) may be directly used as a guideline for determining the use of rivercraft types: a 'small-rapid' character would be ideal for kayaks and canoes, but certainly unfit for towboat operations. These scales may be applied similarly to restricting certain types of recreational activities, land use and flood plain development.

EFFECTIVE USES

The study, as proposed, would provide an objective evaluation of numerous points within the TRIAD region, illustrating their relative potential as well as specific limitations. It would also suggest certain practical 'development zones' and would rank these by their suitability to regional recreational needs.

The organization of this study permits a low cost comprehensive evaluation of the entire river system, irrespective of political boundaries and personal opinions, thus it serves as a reference guideline for putting more detailed site proposals into a regional perspective.

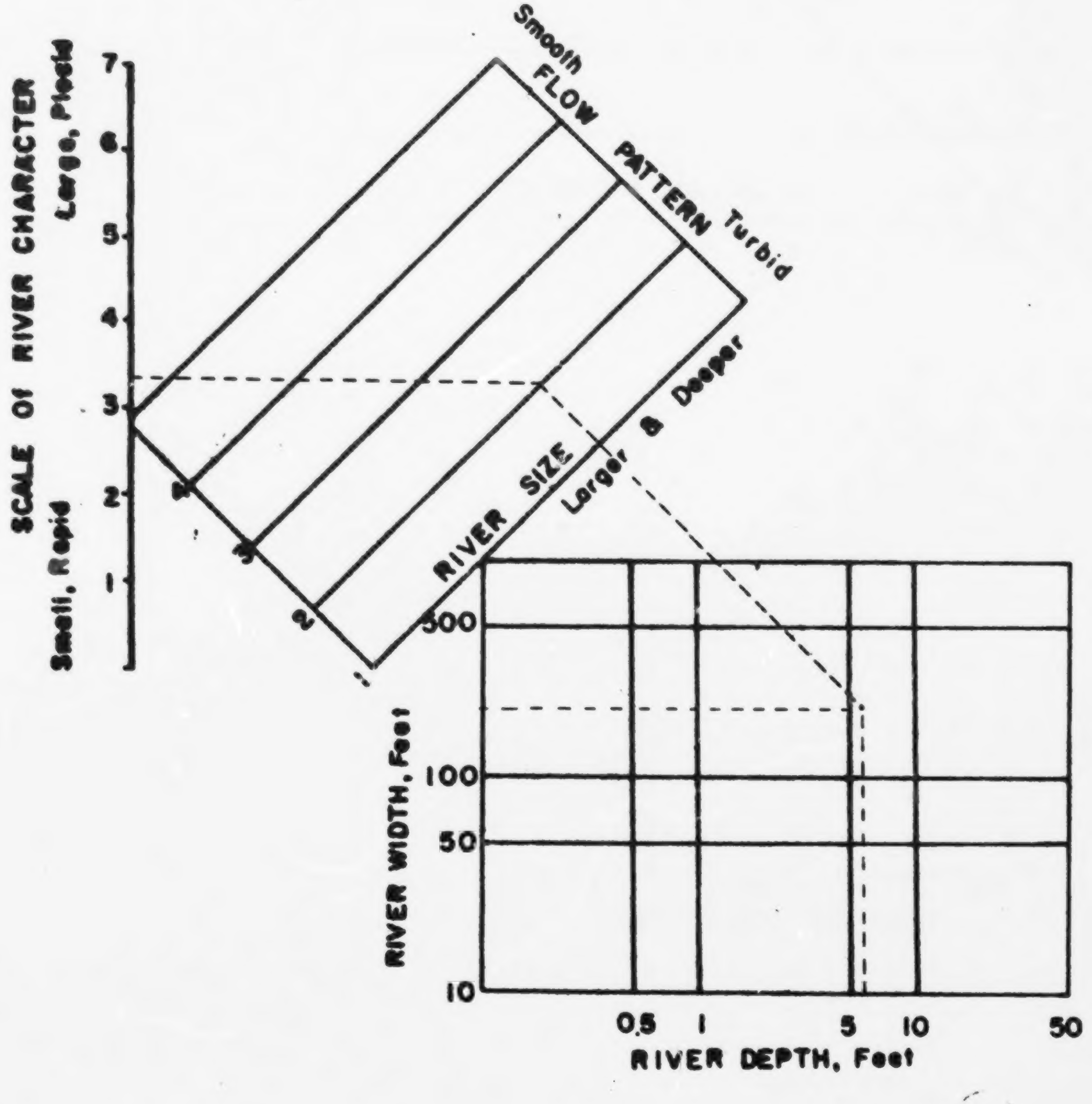
The results enable your organization to aid local municipalities by providing a 'back-up' study in requesting county, state and federal grants-in-aid, such as Pennsylvania's $500 million bond program.

Finally, the results of the study may be used to interpret descriptions of proposed industrial sites and to render suggestions consistent with environmental impact, potential land uses, and regional needs.

SUMMARY

In summation, this study will provide a comprehensive inventory of potential sites, far beyond the limitations of subjective evaluations. It will be able to compare all the available sites within the region on the relative merits of each specific site, and will be able to group assemblages of such sites accordingly. Thus, it will enable the regional coordination of a wide vafiety of planning activities and justify requests for grants implementing them.

ENVIRONMENTAL AND AESTHETIC FACTORS OF RIVER RECREATION SITES



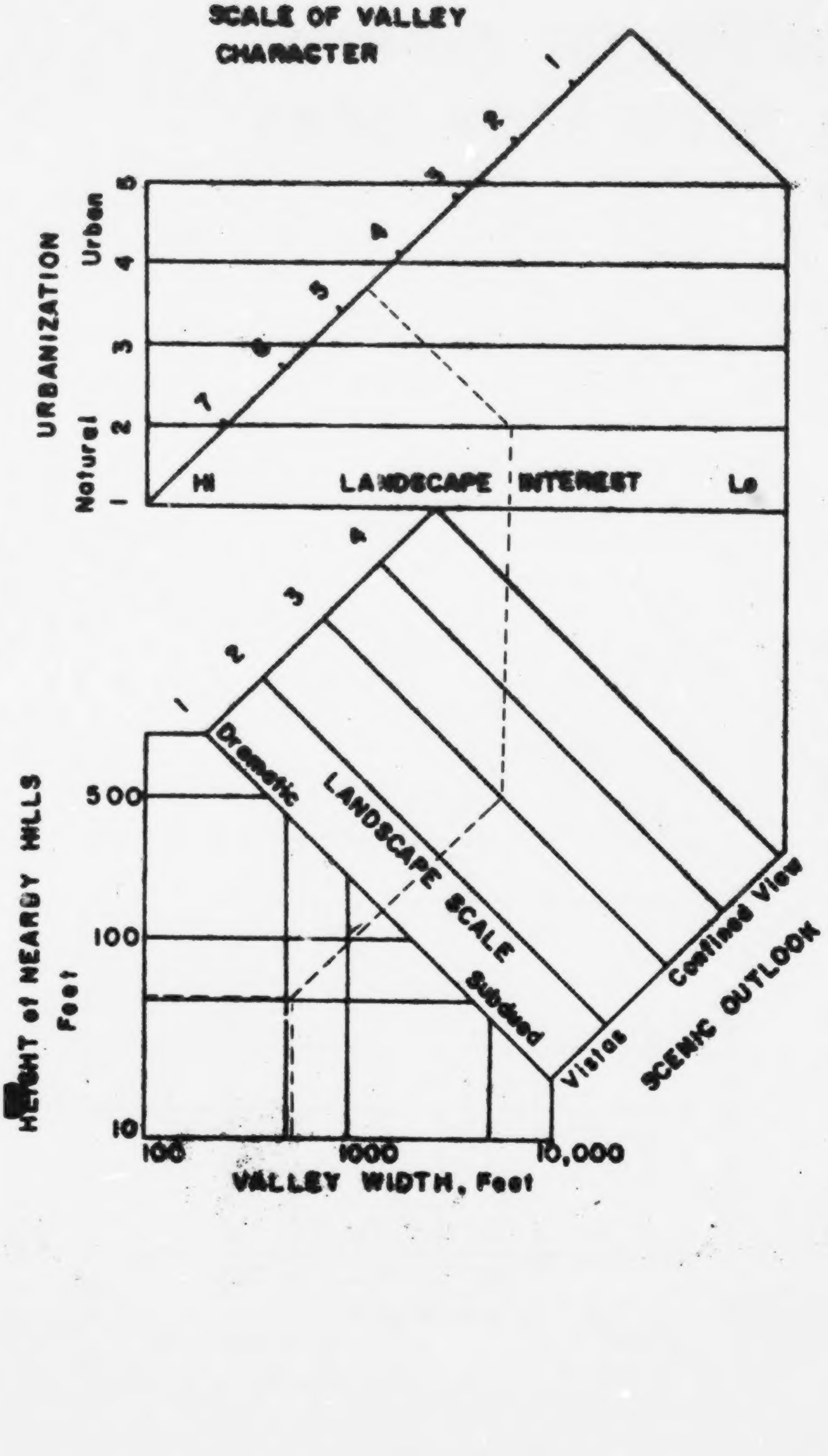

SCALE OF VALLEY CHARACTER
1
2
3
4
5
6
7
URBANIZATION
Natural
Urban
1
2
3
4
5
HI
LANDSCAPE INTEREST
Lo
1
2
3
4
Dramatic
LANDSCAPE SCALE
Subdued
Vistas
Confined View
SCENIC OUTLOOK
HEIGHT of NEARBY HILLS
Feet
500
100
10
100
1000
10,000
VALLEY WIDTH, Feet

TABLE I: Human Use and Interest

	1	2	3	4	5	
Local Landscape	Diverse views & scenes	Mountains, hills & valleys	Steep hillsides, cliffs	Low relief, no sharp features	Closed or without diversity	I 1
Vistas	Vistas of far places	View limited by distant hills	View limited to river valley	River banks only	Closed view	I 2
View confinement	Open, no obstruction	Widely scattered obstructions	180 degree field of view	90 degree field of view	Closed by hills, cliffs or trees	I 3
Land Use	Wilderness	Grazed	Lumbering	Forest & Mixed Recreation	Urbanized	I 4
Utilities	Scene unobstructed by utilities	Wood Pole lines	Transmission towers	Tracks and power lines	Scene obsucred by utilities	I 5
Degree of Change	Original	Biologic change	Topographic Change	Foreign material	Materially altered	I 6
Recovery Potential	Natural recovery	Natural recovery through conservation program	Long term natural recovery	Partial recovery	Natural recovery unlikely	I 7
Urbanization	No buildings	Scattered structures	Clustered low buildings	Clustered low bldgs. with occasional high	Dramatic Urban Skyline	I 8
Industrialization	No Industry	Scattered light industry	Light industry	Light & Heavy industry	Heavy Industry	I 9
River Controls	Free and Natural	Stabilized banks	Locks & dams	Adjusted course	Artificial channel	I 10
Historic Features	None	Hist. location, no remnant feat.	Scattered remnants	Well preserved feature	Many historic features(marked)	I 11
Individual Access	Wilderness	Paths	Marked trails	Roads	Paved access	I 12
Mass Access	Wilderness	Paths	Marked trails	Roads	Paved access	I 13
Trash & Litter (Occurances per 100 feet)						
Metal	Less than 2	2 to 5	5 to 10	10 to 50	Over 50	I 14
Paper	Less than 2	2 to 5	5 to 10	10 to 50	Over 50	I 15
Other	Less than 2	2 to 5	5 to 10	10 to 50	Over 50	I 16
Special Interest	None	Occasional interesting event	Interesting feature	Interesting feature with occas. events	Unusual Interest	I 17

TABLE II: Physical Parameters

	1	2	3	4	5	
River Width, low flow	less than 3 feet	3 to 10 feet	10 to 30 feet	30 to 100 feet	greater than 100 feet	P 1
Depth at Low Flow	less than 0.5 feet	0.5 to 1 foot	1 to 2 feet	2 to 5 feet	greater than 5 feet	P 2
Velocity at low flow	less than 0.5 fps	0.5 to 1 fps	1 to 2 fps	2 to 5 fps	greater than 5 fps	P 3
Bankfull depth	less than 0.1 foot	0.1 to 2 feet	2 to 4 feet	4 to 8 feet	greater than 8 feet	P 4
Flow Variability	Slight variation	little variation	normal variation	seasonal variation	Ephemeral or large	P 5
River Pattern	Torrent	Pool & Riffle	Without riffles	Meander	Braided	P 6
Ratio of valley height to width	= 1	2 to 5	5 to 10	11 to 14	= 15	P 7
Bed Material	Clay or silt	Sand	Mixture of sand & gravel	Gravel	Cobbles or larger	P 8
Bed slope (%)	less than 0.05%	0.05 to 0.1%	0.1% to 0.5%	0.5 to 1%	Over 1%	P 9
Basin ares (sq. mi.)	less than 1	1 to 10	10 to 100	100 to 1,000	Over 1,000	P 10
Stream Order	2nd or less	3	4	5	6 or over	P 11
Erosion of Banks	Stable	Soil creep	Slumping	Flood wash	Erosion in progress	P 12
Deposition	Equilibrium	Silting on edges	Sand bar formation	Slip-off slope	Large scale deposition	P 13
Width of valley Flat	Less than 100 feet	100 to 300 feet	300 to 500 feet	500 to 1,000 feet	Over 1,000 feet	P 14

TABLE III: Biologic and Water Quality Parameters

	1	2	3	4	5	
Water Color	Clear & Colorless	Green tints	Brown tints	Visible impurities	Unclear, reddish	B 1
Particulate matter PPM	less than 25	25 to 150	150 to 1,000	1,000 to 5,000	Over 5,000	B 2
Floating material	None	Vegetation	Foamy	Oily	Variety	B 3
Water Condition	Poor	Potable	Good	Clear	Excellent	B 4
Algae						
Amount	None	Barely observable	Visible in water sample	Coating channel	Infested	B 5
Type	Green on rocks	Blue Green	Diatoms	Floating Green	Yellow	B 6
Larger Plants						
Amount	Scattered in shallows	Clustered in shallows	Scattered in channel	Clustered in channel	Infested	B 7
Type	None	Unknown rooted	Elodea & Duckweed	Water Lily	Cattail	B 8
River fauna	None	Invertebrates, Amphibians	Catfish, suckers, carp	Game fish & water fowl	Large variety	B 9
Pollution evidence	None	Taste	Color	Color, odor	Heavy pollution evident	B 10
Water Acidity	Neutral	Safe for all recreation	Restricted recreation	Damage to fauna	Unsuitable for use	B 11
Land Flora						
Valley	Open	Open, grass and trees	Brushy	Wooded	Trees and Brush	B 12
Hillslope	Open	Open, grass and trees	Brushy	Wooded	Trees and Brush	B 13
Diversity	slight	several grasses	wildflowers	several tree types	great variety	B 14
Condition	pristeen	good	use in evidence	improper use	overused	B 15

TABLE IV: Tally Sheet for Observation

No.	Descriptive Categories	Sites: ___ ___ ___ ___ ___ ___ ___
I 1	Local Landscape	
I 2	Vistas	
I 3	View Confinement	
I 4	Land Use	
I 5	Utilities	
I 6	Degree of Change	
I 7	Recovery Potential	
I 8	Urbanization	
I 9	Industrialization	
I10	River Controls	
I11	Historic Features	
I12	Individual Access	
I13	Mass Access	
Trash & Litter		
I14	Metal	
I15	Paper	
I16	Other	
I17	Special Interest	

*******INTEREST SUBTOTAL*********** ___ ___ ___ ___ ___ ___ ___

No.	Descriptive Categories
P 1	River Width
P 2	Depth
P 3	Velocity
P 4	Bankfull Depth
P 5	Flow variability
P 6	River Pattern
P 7	H/W Ratio
P 8	Bed Material
P 9	Bed Slope
P10	Basin Area
P11	Stream Order
P12	Erosion
P13	Deposition
P14	Valley Flat

*******PHYSICAL SUBTOTAL*********** ___ ___ ___ ___ ___ ___ ___

B 1 Water Color
B 2 Particulates
B 3 Floating Material
B 4 Water Condition
Algae
B 5 Amount
B 6 Type
Larger Plants
B 7 Amount
B 8 Type
B 9 River Fauna
B10 Pollution
B11 Acidity
Land Flora
B12 Valley
B13 Hillslope
B14 Diversity
B15 Condition
*******BIOLOGIC SUBTOTAL*********** ___ ___ ___ ___ ___ ___ ___

TOTAL (All Categories)************* ___ ___ ___ ___ ___ ___ ___

MR. STEIN: Do you have any more?

MR. LYON: I am not sure that these people are here.

Mr. Skwarecki from Marquette Cement.

MR. SKWARECKI: No comment.

MR. LYON: No comment.

Mr. Tennant from Allegheny Power System?

MR. TENNANT: No comment.

MR. LYON: And I don't think Mr. Thomas from Metcalf and Eddy is here. He did speak, I believe, briefly yesterday.

MR. STEIN: He left last night.

MR. LYON: He left last night.

That completes my list. Is there anyone else from Pennsylvania who would like to speak? Apparently not, Mr. Chairman.

MR. STEIN: Is there anyone else who wants to make a statement, because we very well may be closing the public session of this conference at this point.

If not, I want to thank you all for coming. We will try to arrange an Executive Session with the conferees, and we will be able to determine this in a little while. I am hopeful maybe we will be able to have an announcement later on today. If we do, the announcement will come here.

Let me check with the conferees. Do you think we can eat lunch and go into Executive Session today?

MR. LYON: Sure.

MR. STEIN: All right. That would bring us up to 2:15. I would guess that we would not have an announcement before 4:30 or 5:00 o'clock.

We will send out word at 3:30 when we will be here. Maybe we can be more rapid than that. We will do the best we can.

For those of you who are not coming back, I would like to thank you all for coming and participating and adding to the record, and we will stand recessed.

(Whereupon, the conference recessed for Executive Session at 1:05 p.m.)

(The Conclusions and Recommendations of the conference follow on pages 530 and 531.)

- - -

CONCLUSIONS AND RECOMMENDATIONS

1. Pollution of interstate waters, subject to abatement under the Federal Act, is occurring in the area covered by the conference.

2. Measures have been taken toward abatement of pollution by the State of Pennsylvania.

3. The delays encountered in abating the pollution have been due to the complexity of the problems in the conference area.

4. As required by adopted water quality standards, all boroughs, townships, sanitation authorities and industries in the Commonwealth of Pennsylvania that discharge wastes to the Ohio River and its tributaries provide a minimum of secondary treatment for all their wastewaters, and all municipal waste treatment plants in Pennsylvania that discharge to the Ohio River and its tributaries provide adequate year-round disinfection of their wastewater effluents.

5. All municipal and industrial waste sources in the EPA conference area report shall have the required treatment facilities completed and in operation by December 1973, except where completion is required by approved, individual schedules. Interim dates not in EPA hands for all waste sources in the EPA report are to be submitted to EPA within 3 months. Where such time schedules are not

being met, the State will take appropriate enforcement action. Where applicable, interim dates to be submitted are as follows:

Preparation of preliminary plans
Preparation of final plans
Award of contracts
Start construction
Finish construction

6. The State and Interstate conferees request EPA to seek funds to provide:

a) a matching Federal grant to develop a comprehensive water quality management plan, required under 18CFR601.32-33 for the Ohio Basin, to cover all aspects except abandoned mine drainage.

b) a Federal grant, of 75 percent or more, be made available within 1 year for the abandoned mine drainage portion of the plan.

7. The State and interstate conferees request that this conference be discontinued and any changes in approved Federal water quality standards be carried out through ORSANCO or the proper channels outlined in Section 10(c) of the Federal Water Pollution Control Act.

(Whereupon the conference adjourned.)

(See page 266)

PENNSYLVANIA FINDINGS

OHIO RIVER ENFORCEMENT CONFERENCE

1. An effective water quality management program in the Ohio River Basin requires the cooperation of the three levels of government- Federal, State and Local- ORSANCO and the private sector of the economy.

2. Water quality standards required by Federal law have been established by the State and approved by the Federal government for the Ohio and Monongahela Rivers. Included in the standards are effluent limitations for the various Pennsylvania municipalities, mines and industries that discharge to the Ohio and Monongahela Rivers. ORSANCO (of which the Federal Government is a member) has recently established minimum effluent standards for the Ohio River and orders to implement these standards have been issued in Pennsylvania. Pennsylvania is implementing these standards. In addition, all active coal mines in Pennsylvania are under stringent control.

3. The Federal report prepared for this conference describes problems that were also recognized and described in establishing water quality standards. It omits problems which are significant in abating pollution of the Monongahela and Ohio Rivers. The most serious problem omitted is that of abandoned mine drainage which must be solved if water quality standards are to be met. The mines not only add to the acidity and iron problem, but also to dissolved solids problems.

The Federal recommendations for control of waste discharges conform to Pennsylvania's implementation plan in general, although there are some detailed technical questions relating to these recommendations. Despite the level of clean-up proposed by these recommendations and being carried out by Pennsylvania, abandoned mine drainage remains a major problem. Five major fishkills occurred in the past two years in the lower Allegheny River, and a major fishkill occurred on the lower Monongahela River this year, due to acid mine drainage flushouts.

It is not likely that a significant improvement in the rivers fisheries will occur unless abandoned mine drainage pollution is abated.

In addition, analysis of the dissolved solids content of the Ohio River indicates that dissolved solids are two to three times natural concentrations. About 75% of the excess dissolved solids are believed to be due to mine drainage.

In the Monongahela River, total dissolved solids do not meet water quality standards. Most of the excess is due to mine drainage. Since the standards are not met, new significant sources of dissolved solids cannot be allowed, and economic development could stagnate. The more economical forms of air pollution control measures through water disposal that are badly needed are constrained because of this problem. Two major air pollution sources are sulfur emissions and coke quenching which would significantly increase the dissolved solids load.

During the past few years there has been improvement in the pH and dissolved oxygen content of the Ohio River in Pennsylvania, and the Monongahela River showed a significant improvement in acid and iron.

This improvement has been due to numerous actions by Pennsylvanians to improve the river and its tributaries. Over $300,000,000 in local share has already been spent for pollution control. Another $200,000,000 in total costs is under construction or planned. We expect the river to meet all criteria except pH, acidity, iron and total dissolved solids when this work is completed. Complete compliance cannot be attained until a significant amount of the abandoned mine drainage is abated.

A general breakdown of local shares in treatment follows:

Sewage Treatment in Operation

Local -	$165,000,000
State -	$ 25,000,000
Private -	$ 15,000,000

Industrial Waste Treatment in Operation

Private -	$100,000,000

The total cost of treatment planned and under construction is:

Sewerage -	$150,000,000
Industrial Waste Treatment-	$ 40,000,000
Abandoned Mine Drainage -	$ 10,000,000

By 1974 an investment of over one-half billion dollars will have been made in pollution abatement in Pennsylvania's portion of the Ohio basin.

EPA recommends higher levels of BOD reduction on the river. We agree that more BOD reduction is needed. This is why the limit of 60,000 pounds per day at ALCOSAN was established after stream study during low flow summertime conditions to maintain a minimum of 4 mg/l dissolved oxygen in the river at a flow of 3,800 cfs. An order setting this limit was issued by the State in 1966 after consultation with ORSANCO (on which EPA's predecessor was represented). EPA approved the ALCOSAN upgrading project for a construction grant in 1970.

The location, operation and construction of navigation dams significantly reduce the dissolved oxygen resources of the rivers. Considering presently required levels of treatment, an additional 2.5 mg/l of dissolved oxygen would be available if the Ohio were free flowing. In terms of water use, the treatment needed to hold dissolved oxygen above warm-water fish requirements would, under natural river conditions, hold oxygen above trout requirements. If some or all of this lost dissolved oxygen could be restored, we would have a large factor of safety to protect warm-water fish against treatment upsets and other problems associated with dissolved oxygen levels in the stream.

It is recommended that EPA request the Corps of Engineers to restore dissolved oxygen to the maximum practical extent in the pools above existing lock and dam structures, and that future replacements, modifications and operations of such structures be made to maximize stream reaeration.

6. Federal demands on Pennsylvania for data have increased significantly during the past several years. Under the threat of losing the already inadequate amount of program grant money now paid to the Commonwealth, field staff have been diverted from making inspections to transfer data from State forms to Federal forms. This diversion has resulted in the loss of 2,500 inspections per year and consequent loss of enforcement capability.

Federal financial support of State water pollution control programs has fallen far behind that anticipated in the Federal law while Federal demands on State time have increased. The Federal Water Pollution Control Act sets the minimum Federal share at 33-1/3 percent of the total State program cost with an expectation of 50 percent as an average figure. Authorizations and appropriations have not matched this level of participation. Over the past five years Pennsylvania's grant has averaged only about 25% of its program costs which is a deficiency of between $1.75 million to $6.0 million (33-1/3% and 50%). The average annual deficit ranges from $350,000 to $1,200,000. More inspections, follow-up and general pollution abatement could have been achieved had these monies been made available.

In terms of financial help, the States receive for programs about 1.2% of the total Federal water pollution control budget.

7. In a little more than three years, three separate Federal regulatory actions regarding water quality standards have been taken. In May, 1968, the Secretary of Interior approved water quality standards for Interstate standards in the Ohio River in Pennsylvania. On November 13, 1970, ORSANCO, on which EPA is represented, unanimously adopted a water quality standard for the Ohio. On July 2, 1970, EPA issued Federal regulation 18CFR601.32-33 requiring the States to develop comprehensive basin plans for water pollution control including detailed abatement programs for regional and metropolitan areas. These are to be completed by July 1, 1973. The Federal report for this conference issued by EPA now recommends a fourth set of Federal standards.

The establishment of a standard triggers a chain of activities including orders, engineering designs, financing, construction and operation. It is humanly impossible for the industries and municipalities of this area and the Commonwealth of Pennsylvania to respond intelligently to this moving, erratic, vacillating target of Federal standard setting.

We want clean streams. We will accept the Federal role in water pollution control, but we cannot live with constant vacillation.

Industries and municipalities which do not want to move to abate their pollution take advantage of such vacillation.

It is therefore our view that the standard revisions that are in the recommendations of the Federal report be rejected and that the present process which has been triggered under Federal regulation 18CFR601.32-33 involving sound comprehensive planning be used to establish additional modifications in effluent standards. In order to avoid unnecessary delay, we recommend

(a). That a matching Federal grant (50%) be made within one year to develop a comprehensive water quality management plan, required under 18CFR601.32-33 for the Ohio basin, to cover all aspects except abandoned mine drainage.

(b). That a 75% Federal grant be made within one year for the abandoned mine drainage portion of the plan.

(c). That this conference be discontinued and any changes in standards be carried out through ORSANCO or the proper channels outlined in Section 10(c) of the Federal Water Pollution Control Act.

This conference was called under the Enforcement Sections of the Federal Water Pollution Control Act. It is curious, therefore, that the Federal report does not speak in any way as to the subject of on-going enforcement programs involving the Federal government, ORSANCO, and the Commonwealth of Pennsylvania. This would appear to be an appropriate concern of this conference and it should therefore be noted that in the section of the basin upstream from the Pennsylvania state line, the Commonwealth of Pennsylvania has, in the past five years, taken 5,100 enforcement actions, including violation notices, upgrade orders, compliance and punitive actions. The Federal government's Federal enforcement actions have been taken against four companies during the same period.

In this connection, when we asked for data on cases being considered for prosecution by the Federal government under the 1899 Refuse Act we were refused the data for ten months. We were recently given the data after our complaint at the reconvened session of the Monongahela River enforcement conference a month ago.

Ack
jc 10/26

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF ENVIRONMENTAL RESOURCES
P. O. Box 2351
Harrisburg 17105

October 19, 1971

Mr. Murray Stein
Chief Enforcement Officer - Water
Environmental Protection Agency
1921 Jefferson Davis Highway
Crystal Mall, Building 2
Room 1116
Arlington, Virginia

Dear Murray:

I indicated that I would place into the record Secretary Udall's letter approving Pennsylvania's standards for interstate streams as well as certain documents relating to the ALCOSAN project which were included in the application for federal grants funds for EPA. These are herewith attached and I would request that they be made part of the record.

Sincerely yours,

Walt

Walter A. Lyon, Director
Bureau of Sanitary Engineering

Attachments

~~Water quality~~

10-1.32 file

537

6/25/68

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

MAY 21 1968

Dear Governor Shafer:

I am pleased to inform you that, with the consideration stated below, I have approved the water quality standards of the State of Pennsylvania based upon my determination that they are consistent with the protection of the public health and welfare, the enhancement of the quality of the water, and the purposes of the Federal Water Pollution Control Act, as provided by Section 10(c)(3) of that Act. Accordingly, the standards as approved are those applicable under the Act to the interstate waters of Pennsylvania.

A basic policy of the Act is to protect and enhance the quality and productivity of the Nation's waters. Our review and study of standards to date has reinforced our conclusion that implementation of this policy requires a standard substantially in accordance with the following:

> Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality. These and other waters of your State will not be lowered in quality unless and until it has been affirmatively demonstrated to the State water pollution control agency and the Department of the Interior that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently possible in, such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the highest and best degree of waste treatment available under existing technology, and, since these are also Federal standards, these waste treatment requirements will be developed cooperatively.

The standards submitted by your State did not include a comparable provision, and, since it is our mutual desire to carry out the purposes and intent of this Act, I would appreciate your early concurrence with regard to incorporating a comparable provision as a part of the enforceable standards of your State. Please advise, in addition, the time when the procedure for this purpose can be initiated and completed.

I was pleased to note that Pennsylvania chose to establish standards for all of its waters. As you know, of course, Federal standards apply only to the interstate waters of your State.

In the following three paragraphs I will focus on some particular areas where your State's standards for its interstate waters need to be strengthened. However, I would like to offer at the outset my congratulations on the good water quality standards Pennsylvania has set and express my enthusiasm for your ambitious program to abate pollution from acid mine drainage. The fine cooperation we received from your water pollution control officials in negotiating modifications in the original standards is much appreciated.

As I have noted in my letters to other Governors of Delaware River Basin States, I am concerned about the low dissolved oxygen limits set in the Delaware Estuary. I realize that these represent enhancement of polluted waters. I would expect, however, that implementation of the specified treatment requirements will improve the quality of these waters and will enable early establishment of higher dissolved oxygen values. For the present, I would like to request that these criteria which now specify "daily average" minima be modified, at the earliest possible time, to specify absolute minimum levels of dissolved oxygen (criteria b_3 and b_4 in the Pennsylvania submission) which will provide more adequate protection of the Delaware Estuary's fish and wildlife resources.

I have recently approved Ohio's water quality standards with the exception of the Mahoning River. We have asked Ohio to upgrade its standards for this river. When this is accomplished, it may be necessary to revise the Pennsylvania standards accordingly. Since the major pollution problems do not occur in Pennsylvania, any necessary revisions should not impose a significant burden on your State.

There are two areas in the temperature criteria where supplementation and clarification appear necessary. The d_1 limits specify a maximum allowable temperature of 58 degrees F. or natural, whichever is greater; in order to assure more adequate protection of aquatic life in the waters to which the d_1 limits apply, I would like to request that numerical limits on temperature rise over natural be added. The d_2 criteria do specify a suitable limit on artificial temperature rise (5°F.) if the reference to "ambient" is to be interpreted as "natural." We presume this to be the case.

I was gratified that Pennsylvania is protecting a trout fishery in a number of streams. Our water pollution control staffs will continue their efforts to survey the water resources of the State, and if further study reveals additional interstate trout streams, we urge reconsideration of the present classifications of any such streams and establishment of appropriate criteria to protect this valuable resource.

The high degree of treatment and control which your State is requiring for waste discharges is commendable. Successful implementation of the standards is, I feel, the key to accomplishing our mutual goals of protecting and enhancing the quality and productivity of Pennsylvania's interstate waters. Adherence to the high degree of treatment specified and the time schedule proposed in the implementation plan is very important if we are to achieve these goals. The annual State program plan which your State water pollution control agency prepares and submits to the Federal Water Pollution Control Administration in connection with our grant program can provide a basis for updating information on the status of implementing the standards.

I would also like to add that the progress of implementing one part of the program, for Lake Erie, will receive attention at the forthcoming session of the Lake Erie Enforcement Conference. This session will provide an opportunity for this Department and the Lake States to take a collective look at the special lake problems and to assure a uniform approach towards solving them.

Lastly, it is evident that our waste treatment and water pollution control technology will advance and knowledge of water quality requirements for water uses will improve, and the collection of water quality data will make more information available to assure more accurate assignment of water quality criteria. As this new knowledge becomes available, we will further expect to cooperate with the State of Pennsylvania in making necessary amendments to the standards that have been theretofore approved. It will be our pleasure to continue to work together to protect, upgrade and enhance the quality of the waters of your State.

Sincerely yours,

(sgd) Stewart L. Udall

Secretary of the Interior

Honorable Raymond P. Shafer
Governor of Pennsylvania
Harrisburg, Pennsylvania 17120

cc: State water pollution Control agency

Certified Mail

March 21, 1966

Sewerage
Permit No. 8507-S
Pittsburgh
Allegheny County

Allegheny County Sanitary Authority
3300 Preble Avenue
Pittsburgh 33, Pennsylvania

Attention: Leon Wald, Executive Director

Gentlemen:

The Sanitary Water Board at its meeting of March 16, 1966 authorized the issuance of the enclosed order.

If you have any questions relevant to this order, please contact Mr. Joseph P. Smurda, Regional Sanitary Engineer, State Office Building, 300 Liberty Avenue, Pittsburgh, Pennsylvania.

Very truly yours,

E. Marshall Cashman
Acting Secretary
Sanitary Water Board

By direction of the Board

CMB:seb
cc: Staff Services (2)
File
Reg. San. Engr., Region IV
Sewerage

DEPARTMENT OF HEALTH-SANITARY WATER BOARD

SEWERAGE APPLICATION AND PERMIT

1. APPLICATION AND PERMIT NO. 4-68S015

541

2. APPLICANT Allegheny County Sanitary Authority

3. MAILING ADDRESS 3300 Preble Avenue
Pittsburgh, Pennsylvania 15233

HEREBY APPLIES FOR

4. APPROVAL OF PLANS AND PERMIT FOR CONSTRUCTION OF ☐ SEWERS AND APPURTENANCES ☒ SEWAGE TREATMENT PLANT

5. PERMIT FOR DISCHARGE ☒ CONTINUOUS ☐ INTERMITTENT ☐ EMERGENCY ☐ NONE

6. DEGREE OF TREATMENT ☒ COMPLETE ☐ INTERMEDIATE ☐ PRIMARY ☐ NONE

7. TO SERVE City of Pittsburgh and 72 surrounding municipalities

8. IN (MUNICIPALITY) Pittsburgh 9. COUNTY Allegheny

AND SUBMITS AS PART OF THE APPLICATION THE ACCOMPANYING PLANS, REPORTS AND SPECIFICATIONS

10. DATE Feb. 28, 1968

11. SIGNATURE OF APPLICANT OR AUTHORIZED OFFICER

12. TITLE Executive Director

13. CORPORATE SEAL

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA
COUNTY OF Allegheny ss

I, (14) Leon Wald, BEING DULY SWORN, ACCORDING TO LAW, DEPOSE AND SAY THAT I (AM THE APPLICANT) (AM AN OFFICER OR OFFICIAL OF THE APPLICANT) (HAVE THE AUTHORITY TO MAKE THIS APPLICATION) AND THAT THE PLANS, REPORTS AND DOCUMENTS SUBMITTED AS PART OF THE APPLICATION ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SWORN AND SUBSCRIBED TO BEFORE ME THIS
16. 26th DAY OF February, 1968 15. SIGNATURE
17. Velma M. Sokol
NOTARY PUBLIC

REGIONAL ENGINEER'S REVIEW

18. POPULATION TO BE SERVED 9,000 INITIAL 1,440,000 DESIGN

19. PLANS-NO. FOLIOS 285 157 Two

20. REPORT-NO. VOLUMES one

21. SPECIFICATIONS-NO. VOLUMES Five

DISCHARGE TO SEWER SYSTEM OF

22. NAME NA

23. MUNICIPALITY NA

24. COUNTY NA

25. DOES SYSTEM HAVE ADEQUATE CAPACITY? ☐ YES ☐ NO NA

26. COMPLIANCE STATUS NA ☐ IN COMPLIANCE ☐ VIOLATION S.P. ☐ VIOLATION U.P.

TREATED AT TREATMENT PLANT OF

27. NAME OF PLANT RECEIVING SEWAGE ACS

28. CONSTRUCTION STATUS ☒ EXISTING ☐ UNDER CONSTRUCTION ☒ PROPOSED

29. IS PLANT CAPACITY SUFFICIENT TO PREVENT POLLUTION AND COMPLY WITH PERMIT WHEN OPERATING UNDER PROPOSED LOAD? ☒ YES ☐ NO

30. CASE NAME ACSA- PGH

31. CASE COMPLIANCE STATUS ☐ IN COMPLIANCE ☒ VIOLATION S.P. ☐ VIOLATION U.P.

32. TREATMENT PROVIDED ☒ COMPLETE ☐ INTERMEDIATE ☐ PRIMARY ☐ NONE

33. RECEIVING STREAM Chio

34. CLASSIFICATION OF RECEIVING STREAM ☒ COMPLETE ☐ INTERMEDIATE ☐ PRIMARY ☐ NOT CLASSIFIED

35. TRIBUTARY OF

36. DRAINAGE BASIN Chio River

37. WILL PROPOSED FACILITIES COMPLY WITH THE REGULATIONS OF THE SANITARY WATER BOARD AND DEPARTMENT OF HEALTH AND AVERT POLLUTION OF THE WATERS OF THE COMMONWEALTH? ☒ YES ☐ NO

RECOMMENDATION AND ACTION

	APPROVE-ISSUE IN REGION	APPROVE-ISSUE IN CENTRAL OFFICE	REFUSE	POSTPONE		DATE
38.	☐	☒	☐	☐	Thomas Vayansky REVIEWING ENGINEER	5/15/68
39.	☐	☒	☐	☐	[illegible] FACILITIES ENGINEER	5/15/68
40.	☐	☒	☐	☐	William S. Dehner REGIONAL ENGINEER	5/15/68
41.	NO OBJECTION TO AD INTERIM	☒	☐	☐	SEWERAGE SECTION	
42.	☐	☐	☐	☐	DIVISION	
43.	☐	☐	☐	☐	SANITARY WATER BOARD ACTION	

44. APPLICATION ☐ APPROVED ☒ APPROVED SUBJECT TO CONDITIONS ATTACHED

45. BY Paul R. Heitzenrater

46. TITLE Paul R. Heitzenrater, Chief
~~Sewerage Section~~

47. DATE 5/23/68

REGION FILE

Certified Mail

City of Pittsburgh
Allegheny County

Allegheny County Sanitary Authority
3300 Preble Avenue
Pittsburgh, Pennsylvania 15233

SUBJECT: Sewerage Permit No. 4688015

Gentlemen:

The enclosed permit has been issued pursuant to action taken by the Department of Health between sessions of the Sanitary Water Board. Under the provisions of Section 2189 of the Administrative Code of 1929 such action may be rescinded or revoked by the Board at its session on June 19, 1968. If the Board rescinds or revokes the permit, or takes any other action affecting it, you will be notified.

We believe the permit is self-explanatory. It should be carefully studied and if any conditions are not clear, please contact the Regional Sanitary Engineer for your area.

You will note that before this permit becomes operative, it must be recorded in the office of the Recorder of Deeds in the County where the discharge is located. For this purpose, we have enclosed a blank certificate and business reply envelope. Will you please have the Recorder of Deeds complete the certificate, sign it, attach his seal and return it within ten (10) days, in the enclosed envelope.

Very truly yours,

Richard M. Boardman, Chief
Water Quality Section
Division of Sanitary Engineer

RMB:CMB:ajh
cc: Staff Services (2)
File
Reg. San. Engr., Region IV
Allegheny County Health Department

Enclosures - Permit
Standard Conditions
Certificate
Return Envelope
List of Regional Sanitary Engineers

SANITARY WATER BOARD

In re: Sewerage

ALLEGHENY COUNTY
SANITARY AUTHORITY

Pittsburgh
Allegheny County

ORDER

NOW, TO WIT, this 16th day of March, 1966 it is hereby ordered:

1. Sewerage Permit No. 8507-S, issued August 23, 1954 to the Allegheny County Sanitary Authority, is modified to limit by the year 1970 the amount of residual BOD that may be discharged to the pool created by the Emsworth Dam on the Ohio River to 60,000 pounds of BOD per day and provide substantially complete removal of suspended solids.

2. The permittee shall submit to the Board, within ninety days of receipt of this order, a schedule indicating the steps it will take to implement paragraph No. 1 of this order.

3. The permittee shall submit reports to the Department of Health indicating the completion of each step in the schedule within thirty days of the completion of each step.

FOR THE SANITARY WATER BOARD

By direction of the Board

E. Marshall Cashman
Acting Secretary
Sanitary Water Board

This permit is subject to the following special condition:

A. The plant hereby approved shall limit by the year 1970 the amount of residual BOD discharged to the pool created by the Emsworth Dam on the Ohio River to 60,000 pounds of BOD per day and shall provide substantially complete removal of suspended solids. In addition, the plant shall provide such treatment of sewage as, in the opinion of the Board, will accomplish the removal of oils, greases, acids, alkalis, toxic, putrescible, taste and odor producing substances, and other substances inimical to the public interest in the receiving stream; will provide effective disinfection to control disease-producing germs; will provide satisfactory disposal of sludge; and will produce a final effluent that is suitable for discharge into the receiving stream..

This permit is also subject to the following STANDARD CONDITIONS RELATING TO SEWERAGE effective November 1, 1942, attached hereto:

1, 2, 3, 7, 9, 13, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26 and 27.

It is required by law that this permit before being operative shall be recorded in the office of the Recorder of Deeds in Allegheny County.